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The experimental apiary of The A. I. Root Company, at Medina, Ohio

Short Cuts in Apiary Management

By M. J. Deyell

Manager of The A. I. Root Co. Apiaries

The word "management" is important in business today. It is the key that unlocks the door to success, assuming that the type of management applied is efficient.

When it comes to managing an apiary, some beekeepers think that they have to be eternally fussing around with bees, opening hives, gazing at brood and queens, perhaps performing manipulations that may be unnecessary. Beekeeping is different from some other lines of business in that handling bees to most people is so intriguing that they think hives have to be opened every so often regardless of whether or not it is necessary.

There is the beekeeper who has all of his bees in one yard, and knows every colony intimately, not to mention the idiosyncrasies of certain queens. To such a beekeeper the manipulation of hives is a joy and a pleasure, rather than a task to be performed. There are perhaps fewer beekeepers of this type at present than there were a few decades ago.

It would be unfortunate if beekeeping should become such a routine affair that it would lose its romance and poetry. The pleasure of keeping bees is what attracts many to the business. Granting that we must derive a certain amount of pleasure from handling bees to acquire the necessary incentive to continue in the business, it is nevertheless a fact that present conditions do make it imperative that we cut out all unnecessary manipulations in order to conserve on labor, time, and energy, also to derive more profit. It is surprising how little manipulation hives of bees actually need throughout the season.

Requirements Comparatively Simple

When we stop to consider what a colony of bees needs to store the maximum crop of honey, we must ad-

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mit that the requirements are comparatively few, but fundamental. There are at least four: namely, **ample food,** which means honey and pollen, **adequate comb space,** which means good combs for brood rearing and for the storage of surplus honey, a reasonable amount of **protection** from the elements, and maintenance of good stock which means **good bees.** Even with these requirements present, there must be favorable conditions for nectar secretion and bee flight, in order to secure a good crop of honey.

Management may be boiled down to a few simple manipulations. Assuming that each colony is populous, has an abundance of stores and a good queen in the spring, it is necessary only to put on supers during the season, a little in advance of the time they are actually needed, keeping ahead of the bees to avoid congestion within the hives. At the close of the honey flow, when honey is properly ripened, remove surplus honey for extraction, being sure to leave an ample amount to supply the bees until nectar is again available in quantity.

What could be simpler? And yet, a great many beekeepers insist on making a hard job of it. Some think it isn't necessary to put on supers until the last minute, in fact, some fail to put them on until the brood chambers are so clogged with nectar that colonies have started queen cells. Even though supers are put on at this time, when preparations for swarming have been made, it is difficult, in fact, almost impossible, to prevent swarming unless most of the brood is taken out of the brood chamber and put into a super on top in order to separate the brood from the queen, which is left down below under a queen excluder. This is called Demareeing. We use it on colonies that have swarm cells and are bent on swarming. Simply destroying cells doesn't always stop swarming.

What I am trying to say is that this matter of providing ample comb space, which means putting on supers in plenty of time, is one of the most important parts of apiary management. This applies particularly to the production of extracted honey. To produce comb honey in sections it is also necessary to provide ample storage space, but swarming is frequently difficult to control and a suitable technique of colony manipulation may have to be applied to meet a swarming situation.

Top Supering Saves Work

The old method of supering consists of placing the new super underneath the super or supers already on the hive. This means a great deal of labor because the supers already on have to be lifted off in order to place the new super at the bottom of the pile, then lifted back on again after the fresh super has been put on. In the course of a season thousands of pounds have been lifted unnecessarily. It has been found from years of experience, also tests made in a large way, that top supering does actually work. The secret of success consists of putting supers on early, a little in advance of the time they are actually needed. This provides ventilation and gets the bees in the habit of going upstairs. When the honey flow "breaks", the bees, under favorable conditions, will rush the surplus into the supers above. See what Milton H. Stricker, manager of 800 colonies in New Jersey, says about this on page 128 of April, 1944, Gleanings.

It has been found also that supers are filled better when top supering is practiced than when the old method is used. It seems probable that the honey is ripened better, with supering on top. It has been found also that when the double brood chamber, or, food-chamber hive is used, with a queen excluder above the double brood chamber, that the food chamber will contain more honey at the close of the major honey flow when top supering is practiced. It is quite essential that the food chamber be well filled late in the fall, in order to insure an adequate amount of honey for winter and early spring stores. In some regions where there is no fall honey flow it seems necessary to confine the queen in the bottom chamber under an excluder during the latter part of the major flow to help insure having the food chamber well filled.

Use of Food Chamber Saves Much Labor

The food-chamber hive has a number of distinct advantages. It not only saves labor in providing an ample amount of honey for each colony but it helps to insure a more adequate amount of pollen. Furthermore, it produces larger colonies of bees. The populous colonies are the ones that put up big crops of honey when conditions are favorable for a crop.

Authorities are now recommending at least 50 pounds of honey for each colony in the fall. Some say 60 or 75 pounds is none too much. If the bees do not need the honey, it will not be used, but held in reserve. During the spring months it may come in handy in the event that a protracted spell of cool, wet weather occurs. Reserving a superabundance of honey for each colony tends to set the mind of the beekeeper at ease, especially during the spring months. It is needless to say this simplifies apiary management.

Pollen is also needed for early spring brood rearing. Some authorities are saying that each colony should have the equivalent of five or six solid combs of pollen in the fall. Let us assume then that a colony has six solid combs of pollen and 60 pounds of honey. The 60 pounds of honey would occupy almost twelve standard combs. Six combs of pollen, plus twelve combs of honey, would make eighteen combs devoted to the storage of winter and spring stores. That would leave only two empty combs in a two-story standard ten-frame hive. This would not leave much comb space for late brood rearing.

During the fall months bees do not require so much brood rearing space as they do earlier in the season. However, in this area I have frequently seen **brood in eight combs** (please note I do not say **eight combs of brood**) during the month of September. Even the two-story brood chamber hardly seems large enough to furnish ample space for brood rearing, pollen, and honey for a real populous colony of bees. That is perhaps the reason why some beekeepers are now considering three-story wintering.

During the past few years we have been trying out three-story wintering. These three-story colonies are so populous early in the spring and have such an abundance of brood and honey that they can be used for strengthening weak colonies, or, they may be divided, if additional colonies are needed. The divisions can be made at the minimum of expense, namely, a laying queen for each queenless division, plus the necessary labor and equipment. The three-story colonies contain the needed amount of brood, bees, honey, and pollen. What an easy way to make up increase in the spring, at the expense only of extra queens, a little extra labor and equipment.

If a beekeeper does not wish to make much increase each spring he can a least have about one quarter of each apiary in three-story hives during the winter to be used for strengthening weak colonies, or for dividing to make up possible winter losses. The three-story system of wintering lends itself admirably to the two-queen system.

Out-Apiary Management

Due to labor, gas, and rubber shortage, it is going to be more necessary than ever before to make every move count this season. Intelligent apiary management simply means **planning the work, then working the plan.**

If the owner of out-apiaries will take time during the early spring months to work out a program of what he wants to do, detailed plans can then be made for each trip made to out yards.

For example, when a series of out-apiaries are to be visited, the manager should list in his notebook items needed for each yard. A great deal of time and in some instances, embarrassment, can be saved by referring to this list while the truck is being loaded. One person should read the items and another person can see to it that each item is included in the load. Sometimes if careful checking is overlooked the gang may arrive at the out-apiary, some miles from the home base, with some important items such as bee smokers, queens, veils, or matches, missing.

Then, too, it is quite necessary during these days to haul maximum loads to outyards to avoid extra mileage and labor. During the spring months when the order of the day is checking colonies to see that they have everything needed, it would be folly to drive, say, 60 miles to an outyard with the truck empty, simply because supers might not be needed that day. A full load of supers should be taken each time the yard is visited prior to the major honey flow. If the supers are not actually needed that day they may be piled up, bee and mouse proof, at the side of, or in the middle of the yard, where they will be convenient to put on when needed. The foregoing suggestions apply where central extracting plants are used.

Arrangement of Hives in an Apiary

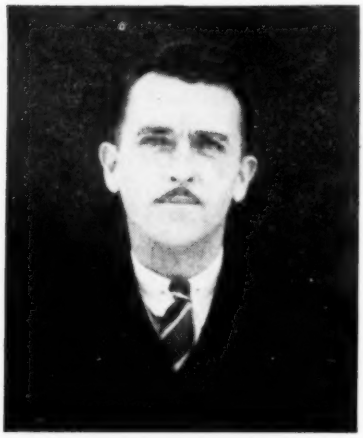
We have found that 50 or 60 hives

(Continued on page 238)

A Method of Increasing Beeswax Production

By C. A. Jamieson

Assistant in Research at Central Experiment Farm, Ottawa, Canada.



C. A. Jamieson

The extensive use of beeswax for war materials has created an unprecedented demand for this by-product of the apiary. Practically all types of ammunition, from rifle cartridges up to 16 inch shells, are coated with beeswax. It forms a protective film which neither expands in jungle heat nor cracks in the sub-zero temperatures of the stratosphere. Beeswax is also used to protect and waterproof delicate wiring and coils in planes, trucks, and tanks. Canvas and leather are water-proofed with material containing beeswax, while harness, shoes, and other leather equipment are sewn with waxed thread.

The use of beeswax in the preparation of cosmetics and in the manufacture of candles has been curtailed to make more available for war industries. Beekeepers have been urged to produce more wax by various means, such as culling weakened combs and combs containing considerable drone cells; by removing all burr combs and scraping hive bodies, supers, floor boards, and other equipment; and by using only efficient rendering equipment, or where such is not available, to send unrendered material and slumgum to the commercial wax rendering establishments.

Another method for increasing production of this product has been recommended which entails the use of 8 combs, one less than the orthodox number of 9 combs, for each extracting super. Eight combs in a standard 10-frame super, properly spaced, filled with honey and capped, should be thicker and thus provide more wax than a super containing 9 combs if uncapped even with the wood. If by this method a significant increase of wax per super could be secured without decreasing the honey crop, then the beekeeper could readily adopt this plan to help provide more wax for war production. Consequently it was desirable to investigate the possibilities of increasing wax production by this method.

Methods of Experiment

During the third week of May, 1943, twenty colonies of approximately equal strength were selected for this experiment. One group of ten colonies was provided supers containing 8 drawn combs, while the other group was supered with 9 drawn combs. The supers were provided when needed by the top supering method.

About a week after the main honey flow commenced, July 9, all colonies in both groups were Demareed to prevent swarming.

At the end of the honey flow, the amount of honey per super was determined by weighing each before and after extraction.

All combs were uncapped even with the frame and the cappings from each super were rendered separately.

Each super was extracted separately in a two-frame extractor and three samples of honey were taken from the top, middle, and bottom, from each extraction for moisture determinations.

As the complete data and the analyses thereof will be published in Scientific Agriculture, only the results will be discussed here.

Discussion of Results

There was no significant difference in honey production due to the reduction of one less comb per super.

The possibility of a higher moisture content of the honey in the thicker combs (see Figure No. 1) whose cells were deeper, was not precluded. This question was raised

by the Editor of Gleanings and in a private conversation with a commercial beekeeper. Refractometric determinations of close to 200 samples of honey did not indicate any significant difference in the moisture content.

More wax was obtained per super from the 8 comb supers as indicated below:

Average Weight of Wax per Super of 8 Combs=291.6 gms.
Average Weight of Wax per Super of 9 Combs=264.3 gms.
Difference= 27.3 gms.

The mean difference of 27.3 gms. which is equivalent to 0.96 ounce, approximately 1 ounce, was found to be significant. Although this increase per super appears to be relatively small, when calculated on the basis of a 100-colony unit it represents a substantial amount. If we assume each colony would fill four extracting supers, then an increase of 25 pounds of wax could be expected. In addition to more wax the investment outlay would be decreased to the extent of the value of four (4) combs per colony or a total of 400 combs.

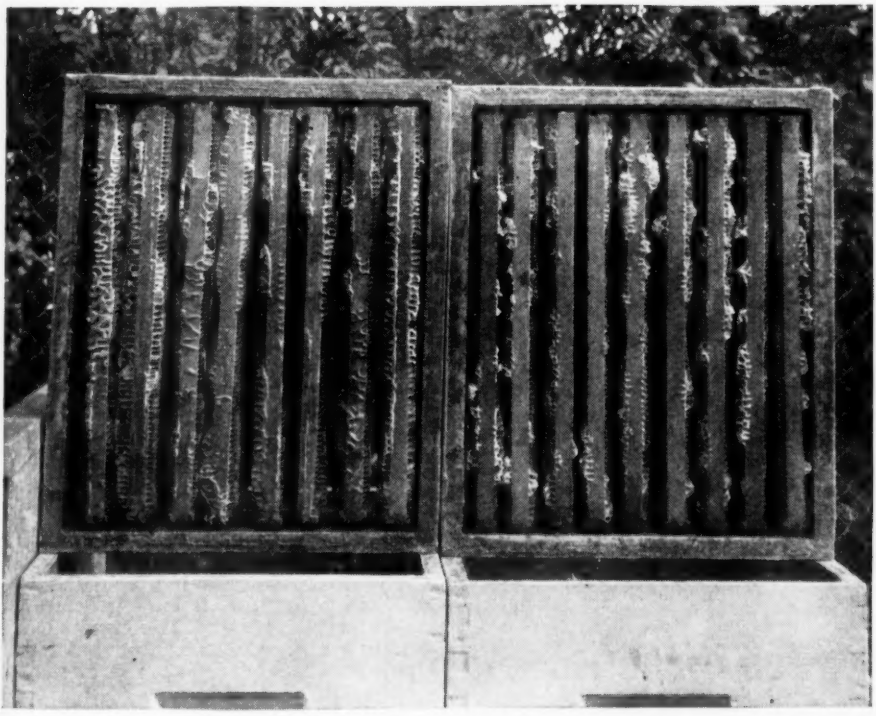
Another advantage with using this plan is that less time is required to uncap thicker combs than thin ones. One commercial beekeeper in the Ottawa district, operating close to a thousand colonies, has been using 8 comb supers for some years. His specific reason for changing to this method was to speed up extracting operations.

There is one disadvantage caused by deep uncapping of thick combs in as much as the cappings contain more honey than from thin combs. Where a cappings press or cappings drier is used, this does not present a problem. When a capping melter is available the cappings should be allowed to drain off as much honey as possible before melting, otherwise an increase in the amount of capping melter honey cannot be avoided.

"War Uses for Beeswax", Australian Bee Journal, Oct., 1942.

"Beeswax a Critical War Product" Gleanings in Bee Culture, June, 1942, p. 360.

Editorial, Gleanings in Bee Culture, May, 1943, p. 289-290.



Left: Super spaced 8 combs to a 10-frame super. Right: Super spaced 9 combs to a 10-frame super. Viewed from the bottom of the supers.

Migrating Platform Apiaries

By Leon C. Nieb

Leon C. Nieb

Fifty Colony Apiaries Moved Six Times per Season Without Handling Individual Hives

Many will remember the experiences of Col. O. O. Poppleton of Florida, in moving bees up and down the Florida East Coast in the late 1800's. Col. Poppleton utilized a launch to transport his "long-idea" hives of bees from one honey flow to another via the system of natural inland waterways which parallel the Atlantic coast. By so doing he could take advantage of honey flows in widely separated localities.

Inspired by the memory of this man's pioneering in moving bees from one flow to another, and goaded into doing a better job than we had previously done in moving bees under conditions of high heat, I undertook last year to develop a system of moving bees which would overcome to a large degree the bad features of the plan we were then using. Previously we had been screening bottoms and using an empty screened shallow super over the colonies for a clustering place while the bees were being moved. In too many instances we found all, or nearly all, the bees in the extra strong colonies dead after a move. This didn't pay! The very colonies which we would normally expect to produce the largest crops of honey were being "stewed in their own juices".

I had tried moving the colonies at night without closing the entrances. When they became too warm they clustered on the fronts of the hives. We didn't kill any more bees, but the bees almost killed us when we tried to unload them. Bees everywhere! All over the hives! All over the trucks! All over us! No more dead colonies, but lots of stings. We could, and did, put on enough protection to keep most of the bees from us, but then we almost had heat prostration from too much clothing.

I finally had an idea which seemed likely to succeed. We built several platforms eight feet wide and from thirty-five to forty feet long. Forty-five to fifty colonies were placed in two rows along the edges of the platforms with an aisle four feet wide between for us to walk on. We secured the hives to the platforms and were ready to move. To do this we backed in under the platform with a specially built truck-trailer unit which we had modeled from the very efficient logging trucks in common use in this locality. The construction of this unit should be apparent from the photographs. With the exception of a little welding, we did all the work on the truck-trailer combination ourselves. At the start we did not have a good plan to follow in lower-

Mr. Leon C. Nieb was brought up on a farm in Southern Michigan. Bees financed his high school and college education. In 1935, he started a small package bee yard in the South. Now he is operating 500 colonies for packages and honey in Florida, and 600 colonies for comb honey in Michigan. He has been a bee inspector for Michigan since 1935. He is married and has three children.

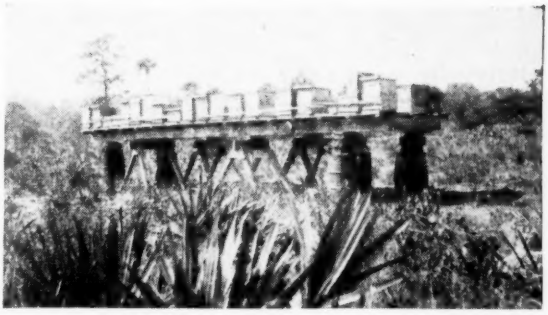
ing the platforms to the bolsters of the truck and trailer. We used a long pry pole and a fulcrum but this slipped too often, so we have been using house moving jacks to do the job, and now I am thinking of installing a hydraulic lift similar to those used on a dump truck.

The platform with its load of bees and equipment is now secure on the truck and trailer ready to go. It is slightly after nightfall and the field bees are all back in their respective hives. The great long outfit swings out on to the highway, its red warning clearance lamps piercing the warm southern dusk. Our destination lies forty, fifty, or a hundred miles ahead.

Let us follow one of these platforms through a year's travel. Our first location in January and February will be on a pennyroyal honey flow. This plant will enable our bees to build up their strength and perhaps make a small surplus. Then, when conditions warrant it, and the citrus fruits are about to put forth their bloom, we drive away with our load of bees to the very best locality available. Arriving at our new location we "spot" the platform where we want it, jack it up, place the "horses" under it, and drive out from under. It is as simple as that. No more terrific stingings! No more dead bees! No loss of a honey crop! And best of all we do not have to handle a single colony of bees.

After the orange flow is over we generally shake the bulk of our colonies into three-pound packages and ship them to our apiaries in the North. We do not attempt to draw more than three pounds of bees from any colony as we want them to build up in the next month for the palmetto honey flow, which can be

The platforms are carried on the heavy bolsters of the tractor and trailer.



A platform holding forty colonies in two rows with aisle between. Just before a palmetto flow, before the colonies have been supered. The truck and trailer can be backed in under the platform to load it.

The "fifth wheel" is constructed of wood, "X" being sawed of oak, and reinforced on top with heavy sheet iron. A heavy pin passes through both bolster and part "X". Another pin connects the tongue to the back end of the truck.

expected sometime in May, as a general rule. We watch the progress of the palmetto bloom closely and when we think it about ready, we drive our outfit to our platform and back in under. Two of us working together are able to lower it to the transport vehicle below in about twenty minutes. Then we are ready to be off down the moonlit road to our destination miles away in a heavy growth of saw palmetto. Arriving at the prearranged spot we unload the apiary without touching a hive and drive away to get another platform if there are still enough hours of darkness remaining to us.

There is an open cattle range down here and it is a common thing to have a big steer amble out of the shadows into the glare of the headlamps. Because of this we don't do any spectacular night driving, for the thoughts of a big load of bees spilled on the highway is a great deterrent to speeding.

After the palmetto flow we follow the same procedure and move to the mangrove swamps. Some years it yields well and a good crop is secured from it, but it is a moody plant (or rather, tree) and is often a failure, while a few miles away it may be yielding freely.

We now try to vary the appearance of the individual hives as much as is practicable. We were disgusted to find that the bees of one platform newly moved to a palmetto location had drifted to one end in the direction of the wind, which was fresh that morning, and had doubled the population of certain colonies, while others were very short of bees. We don't have that trouble now, for we break the monotony of the long rows of hives with branches stuck between the hives, and with rags tacked to the fronts of some of them.

After the black mangrove flow we must hurry the bees off to a cabbage palmetto location. This tree blooms in mid-summer and like the black mangrove, is an uncertain yielder. When it "clicks" it is all right, though the honey has been described by some as being of inferior quality and quite likely to ferment in the combs.

The last move of the year will be to a locality where goldenrod and wild sunflower abound. This winds up the moving for the year, and if we have not missed a "trick" we find that we have moved six times. We also find that it has paid us well, as we have secured more than twice the honey that we would have if we had not moved at all.

One might think that a lot of bees would be lost even at night by moving with the entrances open. This is not the case, as several times I have ridden on the platform and observed conditions. The jiggle and jar seem to pacify the bees and they quietly cluster in dense masses on the hive fronts. The cooling wind flowing by seems to make them cling all the tighter, and they seldom move about.

I have seen the time on rough roads, when daylight had overtaken us before we reached our destination, that a few bees would fly off. Then, too, we found it necessary to make some protection so that bushes along the road would not wipe off a few pounds of bees at a clip from the fronts of the rows of hives.

All in all we like the platform apiaries. They don't cost much (twenty to thirty dollars apiece for materials), we secure a much larger crop, we don't smother any more bees, and we don't get many stings. Another advantage of the platform is that the bees are well up off the ground where they will not be disturbed by the ants which are bad in some places.

The trailer is not expensive and is easy to make. Ours was made from the back half of an old Chevrolet truck. The one truck and trailer can haul a whole series of these portable apiaries.

Manipulation of colonies on the platforms is the same as on the ground, as we have plenty of room back of the hives. Last year we backed our stake rack truck right up to one end of the platforms when removing honey, and as there was little difference in the floor levels the work was easy. Right now I am working on plans for a portable honey house with gasoline powered machinery to travel from one apiary to another. Another year will tell how this will work out.

Titusville, Florida.

[Moving bees in migratory beekeeping involves a serious problem. If the bees are shut in by screens during hot weather many of them are lost by suffocation. If the entrances are left open and the bees are allowed to cluster on the outside of the hives, many stings in spite of smoke, will be received. The plan of putting 50 colonies on big platforms so that the whole 50 or whole apiary can be jacked off the truck on to supports is as novel as it is workable. Few stings would be received. See Editorial page.—Editor.]

Working for Wax in Cuba

By Harry W. Beaver

I was very much interested in the article by B. Alfonso, page 530, of October, 1943, Gleanings. I, too, at one time ran for wax and honey in Cuba. Back in the fall of 1900 I took 200 colonies to Cuba for W. L. Coggshall of Groton, N. Y., arriving on October 26 in Los Mangos, a ghost town about six miles south of Artimesa and 45 miles west of Havana. The bees apparently went through in good shape but due to the confinement and worry they soon dwindled to bare nuclei. The crop that season was a disappointment. At that time there was an influx of American beekeepers, the Summerfords, Fred, Walter, and Frank, Harry Howe, Fred Craycraft, Frank DeBeche, Glenn Moe, Punt Beers, Rambler, Hochstein, Windy Brown of Tulipan, and a few more that I do not now recall.

The next spring I divided all colonies, increased to 550, and went North during the summer months. On returning in September I found the hives packed full of honey and not many bees, all of them having swarmed. The honey crop was not so good. The following spring I profited from past experience and decided to stay on the job, and not caring for more increase I planned to run for wax and take what honey came my way. The bees helped to do the planning by starting to swarm a month before I expected.

One morning when riding my wheel to the yard I was stopped several times by the natives yelling and shouting "enhombre grande". On arriving at the yard I found an enormous swarm of at least ten bushels of bees on an algaroba tree, with the limbs weighted down. What was I to do? I got ready sixteen two-story ten-frame hives with empty frames with half-inch starters and with a fourteen-quart pail I dumped a pailful of bees in each hive. If I got a queen, well and good; if not, I tried again till finally I had sixteen hives of bees with a half bushel or more in each hive.

Taking the hint the bees gave me, I went over the strongest colonies first and shook them onto starters, and extracted the honey from combs that had no brood and cut them out, leaving one-half row of cells for a starter. I put the brood on those that had not acquired the swarming fever. It took me five days to get over the entire lot, after which the first lot hived had their hives full of the nicest white comb I ever saw, mostly drone. I cut out all drone comb, leaving the worker. This plan I continued all summer. Some of these first shaken I shook two and three times during the summer.

Each time I cut out the new comb the bees built some more worker. When the queen could not keep up, they would finish out with drone comb. This was kept up until the frames were filled with all worker comb. We did not wire the frames so the cutting was easy. A great many combs would break out in the extractor during the season but that did not worry us one bit, as that made more wax.

The honey flow kept up intermittently all summer. The country was a swampy jungle with many places so thick it was impossible to get through. It was a mass of aguinaldo, merimino, tortuga, and cat-claw vines, with algaroba and all kinds of fruit trees and palms thrown in for good measure.

I had an average of 9 pounds of wax and 240 pounds of honey per colony for 12 months. Honey was 35 cents per gallon and wax 31 cents per pound.

Twenty-five years later wife and I visited that locality. The Americans had all left and the land was fenced. Everything cattle could eat was eaten. Beekeeping had reverted to the box hive, and apiaries that had flourished with 500 to 1000 colonies had dwindled down to a few hundred, some less, and some had disappeared entirely. Fred Summerford, however, was still in business at Guiines with 2000 colonies, 3500 orange trees, and 1200 avocados.

Troy, Pa.

OUR COVER

Locust in bloom. This is a source of considerable nectar in some regions. The honey has a delicious flavor and heavy body.—Photo by Paul Hadley.

The Drone and the Principles of Bee Heredity

By Percy H. Wright, M. A.

The article by E. C. Bessonet on "The Drone in Relation to Bee Breeding", in the issue of Gleanings for February, 1943, is provocative, but does not begin to exhaust the subject.

"The drone is therefore a half-brother of the worker bee in the same colony," concludes Mr. Bessonet, but the term he has used requires amplification to be completely correct. A human "half-brother" is half a brother, and half unrelated. A drone is half a brother,----. There we must stop. The other half is not represented at all. A drone is made up of only one half the hereditary material from the previous generation that makes up the worker or the queen. Thus, to say that the drone is half a brother is a more nearly correct statement than to say that he is a half-brother.

The "interpretation" which Mr. Bessonet made in the last sentence of column 1 on page 75 is inadmissible. I quote:

"Geneticists have found that the queen bee has 32 chromosomes while the drone has half that number, or only 16. It is the opinion of these men that with only 16 chromosomes, the drone is capable of transmitting an equal number of characteristics. THIS MEANS THAT MORE GENES ARE CARRIED IN EACH CHROMOSOME OF THE DRONE."

It is impossible to explain why Mr. Bessonet's conclusion does not follow from the premises unless one introduces two additional technical terms that Mr. Bessonet has avoided. They are "diploid" and "haploid."

In man, the body cells of the individual are always diploid, and the germ cells, male or female, are always haploid. In man, diploid means having 48 chromosomes, and haploid means having 24. In the honeybee, the fundamental chromosome number is different, and thus it comes about that diploid means having 32 chromosomes, and haploid means having 16.

The mechanism of heredity based upon the different count in body cells and germ cells is one of the most wonderful phenomena in all nature. It allows for a continuous process of mixing and blending of the hereditary material in the cell nuclei of the various individuals of the race. From this mixing and blending comes the possibility of recombination of characters, and from the recombination of characters comes such a vast speeding up of evolution that by its means evolution first really enters the picture. Sex was not discovered by life to no purpose, or kept through the aeons to no purpose. There are plenty of non-sexual methods of propagation. Sex was probably discovered accidentally by very primitive forms of life, which found that it was the key to progress. They then advanced so much faster than non-sexual life that they inherited the earth, and so sex became a fixed feature of life. One has no difficulty in understanding the advantage of sex in evolution, since, by permitting recombination, it **allows gainful sports or mutations which occur in different lines of descent to combine in the one line.**

In fact, one cannot think of any device but sex which would achieve the end. Despite the smaller differences in mechanism, such as those we become aware of when we study bee life in comparison with human life, sex is always fundamentally the same.

Its essential is the haploid condition of the germ cells and the diploid condition of the body cells, the "reduction division" which occurs when the body halves its normally doubled or duplicated nuclear material in order to prepare the germ cells, and the fertilization which restores the doubled number. Except in so far as one individual differs slightly from another, every factor or gene for the features of the adult body must be inherited in duplicate, once from the male parent and once from the female. When fertilization is achieved, the two haploids become a diploid. In other words, for example, 16 plus 16 equals 32, or 24 plus 24 equals 48. When the germ cells are prepared, the process is reversed, and the 16 pairs of chromosomes in one cell become 16 chromosomes in each of two cells. If this reduction did not occur, the number of chromosomes would double every generation!

The first difference between man and the honeybee is that in man a

haploid can never become an individual. In plants, haploidy is a fairly common phenomenon. In bees, the male is a successful individual formed directly from the germ cells of the queen, without that addition of the male element which we call fertilization. When he comes to form germ cells of his own, no "reduction division" is required. His sperm has 16 chromosomes, exactly the same number as have his body cells.

Mr. Bessonet's hazard that the chromosomes of the drone carry more genes than those of the worker or queen is thus unnecessary. They carry exactly the same number of genes and may be regarded as identical except for those, presumably few, which differentiate sex, and those, still fewer, which distinguish one individual from another. The drone transmits an "equal number of characteristics" because he gives everything he has to every sperm cell. The queen does not give her all to her egg-cells; she gives one chromosome out of each chromosome-pair to one egg-cell, and the other to another egg-cell, exactly as mammals do.

It seems to me that the haploidy of the male does not materially change the principles of selective breeding. The fact that a drone can fertilize only one female before he dies changes them far more. So also, in fact, does the enormous population which can result from one fertilization.

If one has a highly superior queen which he wishes to propagate from, he cannot be sure that the superiority will descend to all her daughters, or to all her drones. The gene for the superior trait may be in one chromosome only of the chromosome pair, and if so will go to exactly half her progeny and to half only. If the superiority depends upon two genes, and both are present only in one of the duplicates, half of her daughters will get one or other of the two, a quarter will get both, and the remaining quarter will get neither. This is the ancient law of segregation and recombination, the law which gave sex its advantage as the mechanism of propagation and evolution. The segregates which get neither, or, rather, we should say, none of the factors for superiority cannot meet the conditions of life and are eliminated. However, the difficulty of combining in one individual a large number of desirable genes increases much faster than the number of genes. For instance, if the conditions are as in the illustration already given, and there are three genes to combine, only one out of sixteen daughters will get all three; and if there are four to combine, only one out of sixty-four will get all four---- that is, will equal her mother. Here is the well-known Mendelian law, and it undoubtedly applies to the queen bee as much as to a cow or a mare or a human mother.

The difficulty which nature has in entirely eliminating defective or primitive hereditary material is very great. The men we call color-blind, but should call red-blind, usually survive because the handicap represented is a small thing beside many advantages of health or other superiority which they may have. Nature can only strike an average in weighing the value of an individual, and is compelled to award survival to many that are defective in the less important features.

Man can proceed in the work of improvement faster than can "nature" because of the weapons at his disposal, travel, inbreeding, and swift death for the undesired. By travel the genes for superiority which were separated by distance are brought together, and by inbreeding they are fixed in both of the duplicate chromosomes of the body. And after that is once achieved it is impossible for a "throwback" to occur. In bee improvement, man has followed the methods that he used, half consciously, in his early work with the domestic animals, but, as I understand it, has not as yet achieved much by any means other than mere selection, that is, has not exploited the full resources of the planned scientific methods of the present century. What has been lacking is the means to select, and to control the drone and his activities, easily and on a large scale.

Thus back we come to the drone. Since he has in his body, not duplicates, but only one representative of each chromosome, it follows that there can be no "throwbacks" in so far as his contribution is concerned. The narrowing down of the drone's chromosomes to the haploid number, so that the presence of a gene for superiority in only one of the two usual duplicates cannot mask its absence in the other, is really a very

subtle device to speed the loss of all poor hereditary material. It is especially effective since it occurs in conjunction with an enormous overproduction of drones and the keen competition of drone with drone in the mating flight.

However, as is readily seen, the feature of this triple-based method of selection of good hereditary material is that it is confined to those factors which make for the perfect body of the bee, factors of health and vigor. Other factors, such as those for traits of hive management non-swarming, freedom from propolizing, gentleness, and the habit of cleaning out brood infected with AFB, are naturally not included in the selection to which the drone is subject. And these, of course, are what we desire immediately we have found health and vigor. Some of them, such as gentleness, are even handicaps to the bees in the state of nature.

What is more, there is no way of examining the drone to discover what or how many of these complex factors he may carry and be able to transmit. We can only make a judgment by considering his ancestry and his progeny. We cannot give him a "progeny test" as we can a bull, and use him again. When we consider his ancestry, we at once get back to the problem that we found in considering the female line, the fact that his mother, with duplicate chromosomes, may have a good gene masking an undesirable one. The fact that the haploid in bees is capable of independent survival does not greatly alter the old familiar problem of eliminating undesirable traits which are inheritable but not seen in the individual, since this is involved in the diploid condition of life in general, and in bees, appears in the female line. It merely moves the problem back one generation. There we must meet it again, and solve it by the methods we have developed in dealing with other forms of life. The drone is not an individual in the animal or human sense, he is merely a FLYING AGGREGATE OF GERM CELLS. Despite the fact that the drones descended from one queen are not identicals and that they vary as do the egg-cells of any female, their average value will be the value of the queen their mother, and the way to find desirable drones is to select good queens.

All the foregoing explanations are based upon the orthodox ideas of bee hereditry. How the observations recently reported by William Hamilton of Leeds, England, may affect our future program is yet to be seen. He believes that the drone can influence the drone descendants of the queen he mates with. Unless there is some mechanism of which we are completely unaware at the moment the drone cannot share the inheritance of a mother and of a "father" unless he becomes a diploid. Today the great need is for a cytopogist to investigate the phenomena reported by Prof. Hamilton, following step by step as he, or someone else, repeats the conditions of the experiment.

Moose Range, Sask., Canada

BACKYARD BEEKEEPING

Starting with one colony in the backyard a beginner can soon have his colonies looking like this Illinois apiary belonging to M. G. Eldred.

Beekeeping in New Brunswick, Canada

By Clifford Hodgson

[The following was written January 3, 1942.—Ed.]

You might be interested in a few remarks in regard to the weather conditions here and the sources of nectar as I have found them in the southern part of New Brunswick.

While my work makes it necessary for me to live in Saint John for the greater part of the year, my bees are kept near the dairy town of Sussex, about fifty miles from here. When I speak of weather conditions therefore I am referring to those obtaining in and around Sussex.

The winters cannot be said to be unduly severe, that is, on the average. The temperature occasionally goes below zero but rarely remains so for more than a day or two at a time.

Once in a while we have a day with 20 or more below, but such days do not come very often. Our problem, therefore, does not seem to be one of unduly severe cold but rather one of cold generally late springs. We have many days in May and June when the temperature is in the 50's even on fine days. My feeling is that if the bees have plenty of stores and plenty of protection the rather late spring is not altogether unfavorable. On the contrary, the late opening of the clover flow (main source of nectar here) gives the bees a rather long period for building up. Pollen is available usually about the first of May from the willows, followed soon after by the maples. This seems to give a stimulus to brood rearing which if supplemented by stores of their own carries them over to fruit bloom, about the last of May and early June. There is a plentiful supply of wild cherry and other small wild fruit bloom which, if the weather permits, yields a small surplus. By the time this is past, about the middle of June or soon after, it is almost time for the main honey flow.

The main flow from alsike and the wild white clover begins usually about the last week in June and continues about four weeks. There is a very light flow through August from a number of minor sources, such as cucumbers (grown for pickling to a small extent), the occasional buckwheat patch, goldenrod, etc. It is only the very strong colonies that get a surplus in August and at that does not usually amount to more than 20 or 25 pounds.

While I do not feel that I have had the best possible yields from bees in this vicinity I have had results from moderately strong colonies that indicate that the locality has fair possibilities.

I have found the Caucasian bees to be the most satisfactory to me, not that I feel they have superior honey-gathering capacity or that they winter better, but so far I have not had Italians that could come anywhere near them for gentleness. I like bees near the house, where I can see and hear them at work, so that gentleness is of some importance to me. It is not hard to keep the race free from crosses with Italians as the nearest apiary to me having Italians is about six miles away.

So far my bees have been entirely free from foulbrood. The only trouble that I have experienced to date has been dysentery in the spring. It is because of this that I decided on outdoor wintering, that, and the advantage I hope to obtain by the protection in the spring given by the packing. I am quite sold on the idea of the food-chamber, which I have not had in the past in cellar wintering, but which I hope to have in the future. Some of my colonies were put away with a food chamber this winter, those in one story were fed heavily with sugar syrup.

New Brunswick, Canada.

"Oh, it'll stop 'em from swarming all right."

NOSEMA–BEEKEEPERS' ENEMY NUMBER ONE

By Lloyd C. Gardner

After considerable time, during which the interest in Nosema lay dormant, the question as to what can be done to alleviate its devastating effects comes forcefully to life again in the articles recently appearing in our bee journals.

For several years the writer and many of our central Ohio beekeepers have tried to make ourselves heard on this **potent killer, Nosema**. We have maintained that of all the serious diseases and pests affecting honeybees, Nosema is far out in front of the others. What we can add from our experiences over the past several years may help in finding a solution which will lead to the control of this threat to our industry.

Watering Places as Possible Source of Infection.

It has been claimed that stagnant pools are the sources of infection and that control can be had by providing fresh water or by re-locating apiaries close to running water. In some instances this claim may or may not be true since in the years when Nosema was bad all apiaries, regardless of whether located on the banks of streams or within the center of a farming area in central Ohio, evidenced equal virulence of the disease.

Another point of importance is that the "break down" begins all at once, about a week or ten days after the beginning of the main honey flow, which, coming when it does, has led some to speculate on the possibility of a spreading of the virus to the flowers through the medium of host insects or carriers. This speculation comes from the observation that especially heavy epidemics occur with heavy acreages of yellow sweet clover. Whether or not there is any connection still remains to be proven. Dr. Prell, from Germany, one of the speakers at the Root-Langstroth Memorial Services several years ago at Medina, Ohio, pointed out that Nosema had been found on certain flowers in his country and inferred that it might be possible for the spread of the disease to occur through visits to these flowers by the bees.

The Duration of the Disease.

After about fifteen days it apparently disappears as suddenly as it started. But during that time it may deplete every colony within the area of both field and nurse bees. The question naturally arises, if the disease is present within the hive over winter, why does it suddenly break out in all its fury only to become exhausted after a short fifteen days? And again, if it is constantly present in the hive, how does it happen that no outbreaks have ever been noticed during the fall honey flows?

Three Crops Lost

In ten years, we have lost three complete honey crops because of Nosema and we know that several crops during the same period have been greatly reduced because of it. The latest most serious outbreak occurred in our yards in 1936. Colonies that year had built up unusually well during the spring months. Our records show a general average of fourteen frames of brood at the beginning of the honey flow. Yellow sweet clover was everywhere and we had high hopes of a bumper crop.

Less than ten days after the first bloom appeared, bees were crawling away from the hives by the tens of thousands. Every fence post, protruding stone, and stock of grass was covered with bees. Every bee yard was equally hard hit. Within two weeks very few hives contained more than enough bees to cover two frames of brood and these were bees newly hatched. In all our 1400 hives, not one was of sufficient strength to even produce enough honey to carry it through the winter. And had we not doubled up these hives, reducing our colony count to less than 500 we certainly would have gone out of the bee business that year. Even then a favorable fall did much to save the shattered remnants by coming forth

Mr. Lloyd Gardner was for a number of years a deputy apiary inspector in Ohio. At present he is one of Ohio's largest commercial honey producers, also Manager of Ohio Apiaries Co-operative Association.—Editor.

with an unusual flow from asters and wild sunflower.

The two previous experiences were not unlike this one, and each came along with yellow sweet clover. What makes it all the more puzzling is that never before with white clover, alsike or white sweet clover have we experienced more than a slight indication of Nosema.

Areas south of us that have had yellow sweet clover for several years before it was grown in our area have never reported trouble from this cause. So it probably is true that we might have had the same experience those years regardless of the kind and type of bloom.

Even though it has been said that this disease is more prevalent in wet years, two of our serious outbreaks occurred during fairly dry springs, while the other occurred during a not unseasonably wet spring. Furthermore, it has been noted that late seasons have been free of Nosema within our area.

For several years we have heard many commercial beekeepers say that colony buildup is not what it used to be. Some attribute this to lack of pollen, changing seasons, changing conditions and other reasons. While it is admitted that conditions have in some instances changed there is reason to believe that not all unsatisfactory spring buildup can be attributed to these reasons.

What about the "let-alone" plan advocated by some in the not too far distant past? During the writer's experience as a bee inspector, hundreds of "let-alone" colonies were inspected. Hundreds of colonies operated on the swarm principle were likewise inspected. By far the majority of all these built up to swarming strength by the beginning of the main flow. So the reason for unsatisfactory spring buildup because of lessened individual colony attention is not entirely acceptable. There is another reason and more and more the evidence points in the direction of Nosema.

A few years ago, only a relatively small percentage of queens were superseded in package bees. Three-pound packages, then, were a sure bet, in normal seasons, to produce from one to three supers of honey. Neglect of packages before sweet clover bloom was sure to produce swarms. What is the story today? Isn't the question of queen failure in packages sure to pop up in every beekeeper's session? Hasn't almost every excuse for queen failure been offered, from cutting off egg laying by caging the queen to sugar syrup fed cell-building colonies and sugar syrup fed nuclei? And haven't certain practices by package shippers been employed, chief of which have been loose queen shipping and queen release en route, only to have the same results—a high percentage of supersedure? Again, the evidence points to Nosema as the reason for most queen failures.

Relocation of apiaries so that fresh running water would be available, with more sunshine directly into the hive entrances—even locating yards with no shade during the entire day, all these we have tried. An abundance of salt, either in boxes or scattered in the yards has been provided, so that the bees would not visit questionable or undesirable sources to satisfy their requirements.

So far we have found no method or treatment which would seemingly have the least semblance of value in controlling the disease.

After the first experience with Nosema, our immediate reaction was that our bees were poisoned even though the symptoms differed considerably from actual arsenical poisoning, particularly with respect to unsealed brood. But resembling arsenical poisoning, adult bees were found in great numbers both dead and crawling on the ground in blooming sweet clover fields. Sealed brood, like in true poisoning, showed half emerged bees and much cutting of cappings. In contrast to true poisoning, the unsealed brood covered by nurse bees had all the appearances of normal healthy brood. Any who have had experience with poisoning will remember that unsealed brood shows first evidence and a high percentage of toxicity, generally turning to a mottled muddy black.

We have invariably collected living specimens of infected bees for microscopic examination and have always found Nosema in very large amounts.

Evidence seems to point definitely to an increasing threat from Nosema. Fortunately, the attention of our experts has become focused in that direction and none too soon. Every beekeeper should be on the alert and report every condition which he be-

(Continued on page 237)

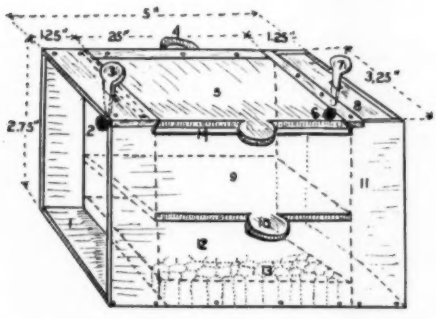
Running Down a Bee Tree

By Prof. Wm. G. Vinal
Massachusetts State College, Amherst

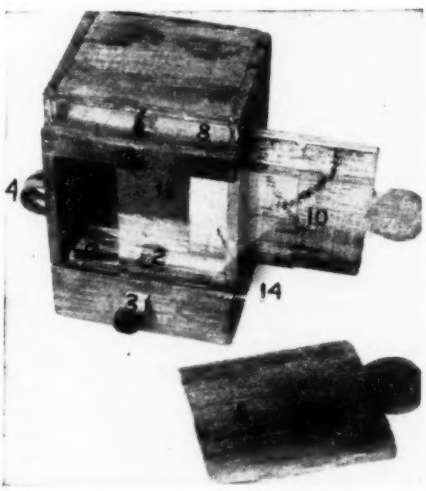
"Lining bees" is a great sport. There is surely an old bee man in your neighborhood who has had experience. Perhaps you can persuade him to get up a "Lining Bees" party. I have interviewed Sam Ritchie, who used to do this very thing, and he told me how he did it. I am going to pass on his story. Even if you do not succeed in organizing an expedition, go out and find your bee man and take the story down as he tells it. He may use picturesque language as Sam did.

"Well, it's this way: We usually waited until goldenrod time. It was between hay and grass. Fishing was over and hunting hadn't started. Along on a frosty Sunday morning the gang would start to hunt. There would be three or four of us with a bee box. We would bait our boxes with sugar and water. Some of the boys poured essence of Anise on their hats. By and by a bee would come and feed. He would bring back four or five others. I don't know how the first bee told the others, but I saw a moving picture once that showed the honey scout doing a peculiar dance.

"In the storage compartment or dark room which was in the bee box we would catch fifteen or twenty scouts. Then we would release one at a time to get the 'bee line' or direction of the tree. Next, we would take a straw or stem of timothy, wet it in our mouth, dip it in a bottle of flour, or red ochre, and dust the back of the first bee to come out. We watched



BEE LINING BOX



1. Front Porch for snaring honey bees from flowers. The top slide (5) is used as a porch cover and the front door (3) is raised so that the bees will pass into the upper chamber (9).
2. Front Doorway opens into upper chamber (9).
3. Front Door which closes or opens for the front doorway (2).
4 Clip for placing box on a Y stick that stands in the ground. The Y stick prevents the box from sliding down.
5. Upper Slide which darkens the upper chamber (9) when it is desired to attract the bees to the back room (11).
6 Back Doorway which opens into the back room (11).
7. Back Door which closes or opens for the back doorway (6).
8. Glass Top for back room. (11).
9. Upper Chamber separated from lower chamber by lower slide(10).
10 Lower Slide which may be removed to give bees access to sugar and water (13).
11. Back Room where surplus bees can be stored.
12. Lower Chamber which contains comb for holding bait of honey and water.
13. Comb where honey and water is placed.
14. Glass top for observing upper and lower chambers. After bees get quiet and start working in the comb (13) the glass top can be removed and placed on the lower slide (10) which is a shelf as it has already been pulled part way out to make the comb visible The bees are now marked and allowed freedom to go to the bee tree. If more bees are needed they may be admitted from the back room (11).

The sizes given for the bee box are actual measurements of the box in the photograph. The bee-lining box can be much smaller. In any case, it is usually small enough to be carried in the pocket. The photograph plus the sketch should enable one to build and operate the box. The wood used is about the thickness of the wood in a cigar box or in a chalk box. The hand-made model from which the photograph and drawing were made is an excellent piece of craftsmanship.

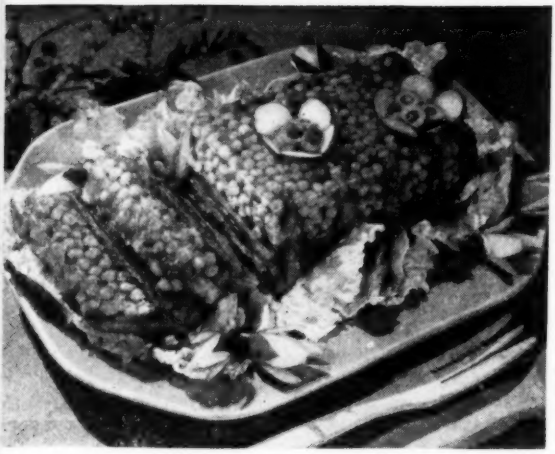
the direction he took and followed him 300 to 400 feet. We called this 'jumping them.' Perhaps we would time them next. The time it took to take the load of sugar water to the tree and to return to the bee box divided by two gave the distance from the tree. Once we fetched up at a hive in a back yard. I recollected that another time we spent a whole day at Mr. Liz' in Enfield and the bee tree was in sight all the time. It was an old hemlock. We carved our initials on that tree, and it was a fortnight before we got around to cutting it. I don't know whether there's anything to it or not, but they say there's a law that if you give the owner of the lot a dollar you have the right to get the honey. There's a law of decency in bee hunting that if you put your initials on the tree the other fellars will leave it alone. We would bring our milk pails. There'd be a gang of fifteen or twenty to cut the tree. Once we got two wash tubs of honey. We'd all stand around with a chunk of comb a-eating it. No one played hog although some got sick eating it. If a man had a large family we'd see that he got a-plenty to take home.

"First, we'd cut the tree down and then we would 'box' it. By that I mean that we would cut halfway through the tree about three feet above the entrance which might be twenty feet up the tree. Then we would cut halfway through two or three feet below the entrance and take a wedge and split the box out. We hardly ever got stung. An old bee man told me that when you break the comb the bees go to feeding and don't sting. He said that when they get their stomachs full they are good natured just like people. Maybe they think that they are going to have to migrate, and they load up with food for their new home.

"We hardly ever tried to get the bees. We would have had to feed them all winter, you see, so we let them go. We did it more for the sport than for the honey. My bee sporting has now been reduced to setting up my box when the cucumbers are in blossom and just watching the bees. I'll watch 'em a whole Sunday afternoon.

"Yep, I reckon if some of you fellars want ter go I'll fetch the box over and go with you. Bee hunting gets in yer marrow. Just the way it is in coon hunting, I imagine."

Part of a back lot apiary owned by M. F. Stephenson, Argos, Indiana. The sky-scraper is a two-queen colony.



Honey and Gelatine Are Good Mixers

By Mrs. Benj. Nielsen

Molded spring salad.—Photo courtesy Kenyon & Eckhardt, Inc.

We hear and read a lot nowadays about the nutritional requirements for an adequate diet. Speaking in more specific terms, we explore and analyze the various classes of foods and just what part each one plays in the building and maintaining of a healthy body. And how we need strong healthy bodies and alert minds to meet the many extra demands on our time and energy! Every day the body must be supplied by foods which supply energy, build, maintain and repair the body structure and regulate body processes.

Honey, a highly concentrated and easily assimulated carbohydrate is tops as a quick energy food. Good sources for the protein necessary for body growth, maintainance and repair are milk, eggs, cheese, lean meats, gelatine and cereal grains.

This month I have chosen honey and gelatine from these highly essential classes of foods and what a team they make! I am referring to the unflavored Knox's Gelatine, not to be confused with the ready-flavored gelatines which are 85 percent sugar. Knox Gelatine is absolutely free from sugar and 85 per cent protein. Of course, honey is used as sweetening and for flavor. And with vegetables and fruits with their health giving vitamins and minerals which promote health and aid in regulating body processes what more can you ask of any recipes!

Before passing on to these appetite tempters, a word about the possibilities of unsweetened juices, honey, and gelatine. Each envelope of Knox Gelatine, 1 tablespoon, will properly thicken for molding one pint of liquid. The liquid left from unsweetened near-gallon fruits, sweetened with honey to taste and sufficient gelatine will, with the addition of diced fruits, make excellent and most nutritional molded desserts and salads. A combination of gelatine and honey produce delightfully smooth textured and elusively flavored ices, custards, and sauces. I do hope that the few suggestions offered in the recipes this month will start you on ideas of your own for combining honey and gelatine—it is a field rich in possibilities and satisfying results.

Do not shun the recipe for the attractive vegetable mold pictured here. True, it does not call for a large quantity of honey—just some for subtle flavor emphasis—but it is chockful of tempting looking vegetables that promote health and well being. The use of honey in connection with vegetable cookery seems to have been a bit slighted. We should increase our efforts to promote the skillful use of honey, even though only small quantities can be used and only to point up flavor. These bits, no matter how small, will increase the per capita consumption of honey.

Spring Vegetable Mold

Two envelopes plain unflavored gelatine (Knox Gelatine), ⅓ cup cold water, 2 cups boiling vegetable juice, ¼ cup mild vinegar, ½ teaspoon salt, 1 tablespoon honey, 1 No. 2 can long string beans or 1 pound fresh string beans cooked, 1 No. 2 can peas or 1½ pounds fresh peas cooked, 1 No. 2 can green asparagus or 1 pound fresh asparagus cooked.

Soften gelatine in cold water and dissolve in hot vegetable juice (drained from canned or fresh vegetables). Add vinegar, salt, and honey, and cool. Pour thin layer of gelatine on bottom of mold which has been rinsed out in cold water first, and chill. When firm, form bottom layer by filling mold half full with cooked peas and arrange asparagus stalks around sides. Cover layer of peas with gelatine liquid. Make second layer of string beans, placing them

cross-wise in mold. Cover beans with gelatine liquid, being sure it goes down into layer thoroughly. Chill. When firm, run thin knife around sides and invert onto platter. Place hot cloths on top to loosen top. Garnish around edges with lettuce. Decorate top with radish flowers made by cutting thin slices of radish and arranging them in petal form to form flowers. Use stuffed sliced olives for centers. Serve with mayonnaise or any desired dressing. Cut in slices and serve. Serves 6 to 8.

Luncheon Salad

One envelope Knox Sparkling Gelatine, ½ cup cold water, 1 cup hot water, ¼ cup mild vinegar or lemon juice, ½ cup chopped celery, ¼ cup honey, ½ teaspoon salt, 2 tart apples, cut in small pieces and ¼ cup chopped pecans.

Soften gelatine in cold water. Add honey, salt, and hot water, and stir until dissolved. Add lemon juice or vinegar and mix thoroughly. Allow jelly to thicken somewhat, then add apples, celery, and chopped pecans. Turn into mold that has been rinsed in cold water and chill. Unmold on lettuce and serve with honey salad dressing. Vegetables may be substituted in place of the fruit.

Salad-Dessert

One envelope Knox Sparkling Gelatine, ¼ cup cold water, yolks of 2 eggs, 1 tablespoon melted butter, ⅓ cup mild vinegar, 3 tablespoons honey, ½ teaspoon salt, ¼ teaspoon paprika, few grains cayenne, if desired, ⅔ cup milk, 2 tablespoons canned pineapple juice, 1 cup prepared fruit, and 1 cup cream or evaporated milk, whipped.

Beat egg yolks and salt, add gradually the vinegar, honey, butter, cayenne, paprika, and pineapple juice. Beat well. Heat milk in double boiler and gradually add to the above egg mixture. Return to top of double boiler. Soften gelatine in cold water. Add to hot mixture and stir until dissolved. When it begins to thicken, remove from fire. Beat occasionally while cooling, and when beginning to set, add whipped cream and the fruit cut in small pieces. Turn into mold that has been rinsed in cold water and chill. When firm, remove to bed of lettuce and garnish with mayonnaise to which has been added a few spoonfuls of whipped cream or the beaten white of an egg. Slice for serving. Mold may be tightly sealed and packed in ice and salt if a frozen salad is desired, or may be turned into the tray of a mechanical refrigerator.

Honey Orange Custard

One envelope Knox Sparkling Gelatine, ¼ cup cold water, 1 cup hot water, ⅓ cup honey, 4 egg yolks, well beaten, 1 cup orange juice, 2 tablespoons lemon juice, ½ teaspoon salt, and ½ teaspoon grated orange rind.

Soften gelatine in cold water. Add hot water and stir until dissolved. Add the honey and stir slowly into egg yolks. Cook over boiling water, stirring constantly, until mixture thickens. Remove from fire, add orange juice, lemon juice, salt, and grated orange rind. Pour into small molds that have been rinsed in cold water and chill until firm. Unmold and serve with little sponge cakes.

Honey Prune Whip

One envelope Knox Sparkling Gelatine, ¼ cup cold water, ¾ cup hot prune juice, 1 cup cooked prune pulp, 2 tablespoons lemon juice, ⅓ cup sugar, 2 egg whites, ½ cup nuts, chopped, and ¼ teaspoon salt.

Soften gelatine in cold water. Add honey, salt, and hot prune juice and stir until dissolved. Add prune pulp and lemon juice. Cool, and when mixture begins to thicken, fold in stiffly beaten egg whites. Turn into mold that has been rinsed in cold water or into sherbet glasses. When firm, unmold and sprinkle with chopped nuts. Serve with or without honey sweetened whipped cream.

(Continued on page 241)

Temptingly molded honey gelatine treats.— Photo courtesy Kenyon & Eckhardt, Inc.

From the Field of Experience

MIGNONETTE FOR THE SMALL BEEKEEPER

By C. W. Wood

After all that has been said for and against mignonette as a nectar plant, there still remains something to be said for it, especially as a combination ornamental and economic subject for the backyard beekeeper. Few, if any, non-agricultural crops are of value to the large-scale operator, to be sure, but the keeper of a few colonies can often afford to grow a fairly large quantity of some flower garden plants if they combine beauty with the ability to produce nectar or pollen, or both.

The reports of different observers are apt to leave one in doubt as to the real status of the plant, but I am sure that Pellett is right when he says that "perhaps it has never been given a fair test on a sufficiently large scale to demonstrate fully its value". He was speaking to the commercial beekeeper, of course, while these notes are addressed to the backyard operator, who can afford to go to some pains to supply his bees with nearby pasture, especially if he plans his plantings so they come into production when natural sources are at their lowest.

It has been my observation that mignonette which comes into flower when sweet clover or even milkweed is in bloom is seldom visited by the bees. On the other hand, if it precedes or follows any of the natural crops, it is eagerly worked, especially during dry weather. Perhaps the nature of the growing medium has some influence on nectar production in this plant as it does in some others. Last summer when mignonette growing in a light sand was attracting bees in large numbers, another planting on clay about eighteen miles away was seldom visited. It may have been a natural source of nectar at the latter place that was the determining factor rather than any influence of soil. In any case, the plant (**Reseda odorata** of the seed catalogs) deserves the attention of backyard beekeepers, for it is within the bounds of plausibility that experiments will show how to include it in one's schedule to carry a few colonies over periods of stress.

The plant is a hardy annual from the Mediterranean regions, growing about a foot in height and blossoms in summer from seeds sown in April, while later sowings will produce fall flowers. It does not stand transplanting well, so should be sown where the plants are wanted. Modern plant breeders have stressed size and color of flower thereby losing much of the fragrance and, no doubt, not a little nectar-producing ability. It would be well, therefore, to see that one's seeds were from the oldtime, small-flowered type.

Copemish, Mich.

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OBSERVATIONS of an AMATEUR BEEKEEPER
One Way to Increase Size of Small Apiaries

By C. O. A. Kramer

Most amateur beekeepers, after starting off with one or two hives, have a keen desire to increase the size of their little apiaries. There are several ways of doing this such as purchasing complete new packages and hiving them in the usual manner; building up a strong colony and dividing it; and a number of other ways. The method I like best and the one with which I have had the greatest success is as follows:

I take a full size hive body and nail a 1-inch board exactly in the center of the body from front to back, making sure that it fits flush on the bottom board and flush against the inner cover when it is in place. You will also have to insert wedge pieces front and back where the metal frame rests are located and also fit a plug in the opening in the inner cover that fits flush on the top of your dividing board. The reason for plugging up all openings is to keep the bees from going from one compartment to the other, which they will do if you let them, thus thwarting your efforts to make two new swarms where none grew before.

I then place the hive body on the bottom board, see that the inner cover fits snugly on the top and fit an entrance closing block that has a half-inch piece sawed out of each corner on both the right and left hand side. These openings become the entrances for the two new

swarms I am about to make. Inside these two compartments I now have room for four combs. I also have on hand some extra queens purchased in anticipation of making these new swarms. If the wings of the queens are not already clipped, I clip them. I then take two combs of sealed brood and two combs of honey and pollen from one of the hives that can spare them and, following my usual procedure of introducing, I sprinkle both the bees on the combs as well as the new queen with a liberal dose of sugar water, half and half, place the two combs with brood in the center up against the division board, drop the queen right onto the brood combs and then put the two combs with pollen and honey alongside the brood combs nearer the little entrance. I do the same with the opposite side. I then plug up both entrances with a little grass, put on the inner cover and top and let nature take its course.

In about two days both new swarms are organized, have removed the grass from the entrances, and are busy at work, the one using the right-hand side entrance and the other the left. I do this about the middle of July and then, about four or five weeks later I push the divided hive forward and where it stood I put two new hives complete with bottom boards, and entrance blocks with the small opening. I now take out the four frames from the left-hand side of the divided hive and put them in the left-hand hive body, putting the four frames in the center of the new hive. At each side I put three new frames fitted with foundation or a couple of drawn-out frames of foundation if I can spare them. Then I do the same with the right-hand side of the divided hive, putting them in the new hive to the right. The old divided hive is removed and put away for future use.

With a good fall flow of aster and goldenrod these new swarms build up nicely and are usually able to fill a medium depth super as well for food chamber purposes. If not, I give them several feedings of syrup to enable them to fill the food chamber as full as possible. The queens, being new, usually do a mighty good job of brood rearing and fill the hive with young bees that winter in good shape and give you a colony that forges right ahead the following spring. Of course, if you have only one hive to draw from you get very little if any surplus that year. If you have six or more hives the withdrawal of a few frames of brood seems to make very little difference in the honey production.

River Forest, Ill.

[The middle of July is soon enough to divide in regions where a fall flow occurs. In regions where little if any fall honey is stored, the middle of June would be about the right time to make increase.—Editor.]

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THE CAUCASIAN BEE AGAIN

By Finney D. Fry

In the January, 1944, issue of Gleanings, Dr. E. F. Phillips, in his article on Caucasian bees, mentioned that breeding queens of that race may be hard to get from their native land for several years after the war, because the German army went right through there. The Huns did drive across the Terek River which heads in the northern part of the Caucasian Range of mountains and empties in the Caspian Sea. They took the town of Ordzhonikidze which lies at the foot of Mount Kazbek with a 16,540 foot peak.

According to Mr. Alexander De Griaznov, a beekeeper in Russia until the revolution, some of the best grey **(Apis Mellifera Caucazica)** bees are kept in the Tbilisi (Tiflis) region which is 100 miles south of Terck and on the other side of the high Causcasian Range near the Armenian border.

It is my opinion that it will be more difficult to get breeding queens from northern Italy, than the Soviet Union after the war, for the Huns destroy everything they can't take with them when forced to retreat.

Dallas 10, Texas.

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POOR PICKING FOR BEEKEEPERS

By Penn G. Snyder

Am sorry to state the sweet clover weevil has been with us for several years and that is one of the reasons we are getting such poor returns in this locality. Added to this, soybeans are being planted more and more extensively and I do not believe there is as much alsike planted as there was a few years ago. Unless sweet clover makes a comeback or some other crop producing honey is planted on the farms in this district it looks like pretty poor picking for beekeepers here.

Trotwood, Ohio.

MORE ABOUT DROPPING CANS OF HONEY

By G. M. Ranum

J. Isaksen's letter in March, 1944, issue of Gleanings, page 91, struck a sensitive chord with me. Dropping a 60-pound can of honey on one's foot is certainly a painful experience and even the dropping of a smaller container can do plenty of harm. A customer of mine, while carrying away a ten-pound pail, had the bail slip out at one end. When the pail dropped, the loose end of the bail hooked into the palm of the man's hand, tearing a large gash in the flesh.

In another case a man was reaching up to set a full pail onto the seat of a high wagon when the bail slipped out and the pail in falling struck the ground with such force as to break the tin and splash the contents around promiscuously.

After witnessing a number of like mishaps I now require that honey pails shipped me must have locked bails. Sixty-pound cans are hardly safe to lift by the bails unless some better fastenings can be devised.

Mt. Horeb, Wisc.

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IS THE CONSERVATION OF WINTER STORES A TRAIT TO BE ENCOURAGED IN THE SELECTION OF BREEDING STOCK?

By R. E. Newell

Through the years I have observed that some colonies consume relatively small quantities of honey when wintered outside, while others prepared the same as to amount of stores and protection, use up more than double the stores, and many reach the stage of starvation if not examined early in March. Now it appears that the size of the cluster of bees is in direct ratio to the quantity of food consumed, and the proportion of young bees is considerably greater in the colony that is extravagant of stores. Some of this honey may have been used to raise more young bees in late fall, while a large part may have been used to raise brood in mid-winter. In either case, the net result has been to produce a fine young cluster of bees a month or two earlier than in a normal colony.

Now if the production of large colonies so early is not desirable, it should be discouraged, but in my opinion such a trait should be encouraged. Without such colonies to draw upon for brood and bees, many medium and under-strength colonies would not fare very well.

With strong colonies in early spring there is no worry over spring dwindling. It is the weak clusters of old bees that cause such worry. If all colonies are left with at least 50 pounds of stores in late autumn and the combs contain a fair amount of pollen, one does not have to worry about wintering them, and each will undoubtedly be a good producing colony by clover blooming time. If, however, a large proportion of the colonies wintered come out exceptionally strong in March and April, sufficient increase to care for ordinary seasons is possible without the necessity of relying wholly upon the southern package shipper. The purchase of queens from the south is desirable for such increase, because any delay in egg production is critical in early spring divisions, if they are to reach the production stage of development in time for the honey flow.

In looking through my colonies on March 12 of this year I found that nearly half of them were of this type, and some were so strong that they would give a good account of themselves if a honey flow should appear. With early pollen about two weeks off, am I worried? Not on your life. I anticipate great doings in April in those colonies, and shall make full use of them.

Holliston, Mass.

[Above article was received March 16, but not in time to get into the April issue.—Editor]

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ONE MAN'S OPINION On Swarming

Let's talk about swarming this month. For me, until I made up my mind that I wasn't going to worry about it any more, it was the biggest problem of beekeeping. That is, outside of wondering how the bees were going to get nectar out of scrub oak and salt water.

Everybody agrees that congestion is the prime cause of swarming. This is aggravated by such things as old queens, too many drones, too little super room, too little brood room, too much heat, not enough ventilation and so forth, making up a long list of items that could have some bearing on the desire of the bees to

look elsewhere for quarters more to their liking.

I had the most swarms when I fussed with the bees to see that they had all of the little things that are supposed to make a bee love its home. Then one year I got mad, and since I didn't have much time to fuss with them, I shot the works with a system all my own.

I am still mildly interested in providing young queens, adequate ventilation, and all the fancy doodads, but not as much as I did in my early years. I came to the conclusion that if I gave the bees good combs, and used standard equipment, those problems would about take care of themselves.

Of course, you must remember that I don't have to worry about putting on super after super until I need a ladder for the last ten or fifteen. The biggest crop I ever hope to get would not require more than two supers to a hive. So guide yourself accordingly, if you want to follow my system.

I generally unpack about the first of May. I use a semi-pack on three sides, open to the sun on the south, and with an upper flight hole. If the queen has gone down to the lower body when I first look in, I reverse the bodies, put on a queen excluder and a super with five drawn combs and four partly drawn or full sheets of foundation. If the queen has not gone down, I wait a week and then do it anyway. If the colony is pretty puny, I might wait still another week. In any event I don't wait past the 1st of June. If the colony has not built up by then, I call it a dud for that year and govern myself according to my desires and temper at the moment.

In case that 1st of May doesn't mean anything to you, let's say about half way between cherry and apple bloom is the time to start swarm control in this way.

I have always thought that the comb builders and their desire to exercise their talent had a lot to do with swarming. That super with plenty of room for comb building acts as a very good safety valve. By getting them up and away from where the queen is we kill several birdies with the same rock. We get nice new combs to take the place of those all chewed up and drony, we get them interested in going past the excluder, and we remove the temptation of taking honey out of the brood nest when extracting time comes around.

And that's all there is to it. But it works—for me. I have some swarms, some years, but nothing to lose sleep over.

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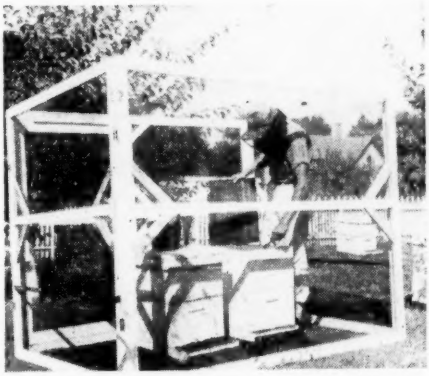
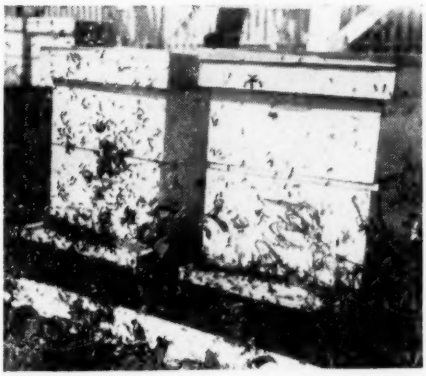
TWO - MAN ROBBER CAGE

By Clarence Tontz

Manipulating colonies openly with little nectar coming in often results in the bees acquiring a robbing fever that lasts throughout the season. Needless robbing prevails every year simply because many beekeepers are vague on the subject of robber cages or doubtful of their usefulness.



The robber cage is of comparatively light weight, but is strong. Two men can work in it easily. Note the handles made of pipes on the ends that makes for easy carrying.



Robber bees drawn to the opened hives by the scent of nectar are stopped short by the screen. Beemen on the inside are able to work unmolested by the vicious bees.

In Iowa the writer used a triangle cage (one to a man) that was simply three screen - covered frames, five feet wide and six feet high, hinged together. A top isn't necessary. The cage covered only one colony.

A better cage, I believe, is the two-man cage shown in Fig. 1. We used it this past season and found it convenient and wholly satisfactory. It is about 8 feet long and 5 feet wide. Height 6½ feet. It is light weight but well reenforced. The handles, one on each end, are discarded pipes flattened on the ends and bolted to the cage frame. The screen door is wide enough to accommodate supers. A regular door spring keeps it tightly closed. The frames are fastened together with hinges. The cage is quickly dismantled for hauling from one apiary to another by removing the pins in the hinges.

Here is a suggestion about using the cage. If bees are likely to rob do not wait until they have started before using the cage. Once they have started robbing and are really bad then they will molest each colony as the cage is removed. The wise proverb of "an ounce of prevention is worth a pound of cure" was never truer than when applied to handling robber bees. It's more fun to carry a cage than to fight off these pests.

Crescent, Okla.

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SECOND GLANCES

By C. M. Isaacson

Packages instead of wintering will probably never become a prevalent practice except in regions where winter losses are normally heavy. But among Alberta beekeepers it evidently is a common thing, and Mr. le Maistre reviews the methods used in handling these packages quite clearly (page 121). His mention of a black paper wrapping as one measure to assist brood rearing is good—likewise the advice to install when bees will not fly freely. Except in unseasonably cool weather, I believe the first method of installation—shaking bees **and** queen into the hive—is best. The queen begins laying immediately and chances of acceptance are high.

A shortage of pollen is more likely to occur when a large number of bees are kept in a locality, as the item on page 124 says. Also, may I mention that when dark combs are used in extracting supers, less pollen will be stored in brood chambers. Pollen substitutes may be of decided help in many cases. (Check Editor Root's remarks on page 143 for future reference in this regard.)

Dust poisoning of bees has become a serious problem of late and research on any phase of this is of real value. That an insecticide, dinitro-phenol, has been found which is relatively non-toxic (or at least, unattractive) to honeybees should be of considerable importance to those using these types of dust for insect control (page 125).

Pollination as a business seems a bit unusual to many of us in heavy honey-producing regions. Mr. Stricker, in an interesting article (page 126), tells of just that being done by the Barclay apiaries. Despite changed conditions which make for many difficulties, they are still carrying on with this very valuable work. His description of methods used in moving spring management and equalization, handling during the main honey flow, winter preparation—all are worth reading over carefully.

More package bees shipped during 1943 despite labor shortages and other wartime difficulties is a fine record (page 129). We Northern beekeepers owe much to this good work.

Beekeeping is a life disease! That is often true, and Mr. Johnson's 60 years with his bees (and the complementing occupation of fruit growing) is just another proof (page 130). That spray poisoning of bees means distinct loss to the fruit grower as well as beekeeper is certainly shown by the description of the poor quality and quantity of fruit after the bees were killed or taken away. One interesting item is brought out—that varieties of fruit blooming at different times can complicate the problem and render it very difficult to apply spray at the proper time and still not cause harm to nearby apiaries. And his advice to start a "honey plant garden"—doesn't that have a nice sound?

"Peppy foods make peppy people" might well be given as the substance of Mrs. Nielsen's page this month—except, of course, for the recipes to prepare these foods by (page 132). Making common foods taste uncommon by the use of just a bit of honey should appeal to all in the beekeeping "clan".

Mentioning "labor shortage" is enough to cause some to cover their

eyes in despair. But Mr. Morse is different—shows instead how to alleviate the situation. A good many of his suggestions are well worth keeping in mind at **any** time. Planning, doing everything possible **before** the busy season, putting all equipment in shape, cleaning and sorting combs, some type of hive record; these are all things we should be doing anyway. Perhaps a little labor shortage is needed to make us work more efficently (page 134).

Beeswax is still scarce (page 136). Let's plan to save every scrap again this season, and produce as much as possible in every way. But remember the warning, don't mix in propolis, you will definitely harm your wax for many purposes.

Bee trees always interest—they seem to awaken a certain instinct in every man. W. R. Kinard seems to be an expert at finding them if we may judge by the photographs and text on page 137.

"Harness the weather" by careful planning—and then adjusting those plans to meet the unexpected. In a few words "One Man's Opinion" tells very much. His advice is right, let's all try it (page 143).

"A learned beeman". Don't class me thus, Spinster Jane (page 151). The longer I work among the bees, the more I realize just how much I must learn! Just put me down as one who **seeks** to know. (But fireweed honey **is** mild!)

"A financial backlog for post-war activities". That sentence from the American Honey Institute News Notes should be foremost in the mind of every beekeeper. Let it be a personal backlog—and, one for the Institute.

Middle River, Minnesota.

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OFF GRADE HONEY

By J. H. Sturdevant

This is now being offered in grocery stores although priced much higher than the prices permitted by the beekeeper, and is evidently causing a depressive effect on sales, even sales made direct by the beekeeper who packs and sells direct to consumers.

The consumer seeing the off-colored honey on the grocery shelves, at once decides that it is not the grade desired. He imagines that his neighbor beekeeper's honey is of the same grade as that on the grocery shelves so he goes no further in his quest for honey. Thereby the "shipped in honey" is very evidently causing a depressed market.

The cheap syrups, a few of which have gone so far as to state "Honey Flavored" Syrup on the labels are offering stiff competition.

You are quite right in stating in your editorial that, "We **are concerned** about the undoing of the splendid work done by the Honey Institute in popularizing honey." The beekeeper who for years has worked to build a local demand for his honey is also quite **concerned** about the possible results which will follow if honey sales are restricted or rationed.

St. Paul, Nebr.

Seen in the South--

This will be a common sight in the South where thousands of package bees are being prepared for shipment to the North.

From North, East, West and South

NORTHERN CALIFORNIA, April 6

Weather: As we mingle with beekeepers today we are apt to hear the remark, "Our long dry summer has commenced and we are short of moisture." This is because we had so little rain in March. During February we had good rains. So far the southern part of the state has the advantage of us in having had more rain. We may get it yet. If we do not, the heavy snowfall in our mountainous counties will help a lot in our great valleys.

Bees: Judging from reports from all parts of our state, bees are in first class condition. There is very little need of feeding. On the contrary, there has been plenty of pollen, and we have had fine weather through the blooming season. Beekeepers are looking forward to an excellent crop of honey in 1944. So far we have heard little complaint of swarming. Here in the Bay region swarming commenced March 10, and is continuing. Many of our city beekeepers have as many bees as they can care for, and let the swarms take care of themselves. The result is they find a home in the wall of a house or some other unwelcome place.

Honey Market: There is little honey left in the hands of the producers. On the other hand, many retailers and wholesalers tell us they are well stocked with honey. And many packers have indicated that, with the present demand, supplies which they now have on hand will carry them through to the new crop.

Beeswax: We had a satisfactory increase in the production of beeswax in 1943, due to the loyalty of the beekeepers to their leaders, who were tireless in encouraging saving. Every beekeeper says "The saving shall be greater in 1944".

Miscellaneous: One of our leading Oakland high schools tried adding a class in beekeeping which proved very popular. At the end of the term they announced that the class would be repeated for a second term, and it is now well started. The shortage of gas is felt. We have a live secretary of our Alameda County Association, and he says the second class must be a greater success than the first. And right here we are told that still another high school, at San Leandro, is also starting a class in beekeeping. —Cary W. Hartman, Oakland, Calif.

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SOUTHERN CALIFORNIA, Apr. 2

Weather: March might have been ruffled up a bit when it came in but it certainly went out like a lamb. The month gave us some very pleasant weather but the rainfall has not been nearly as much as we could have wished. While the soil is moist and all kinds of vegetation is growing, still we must look for our heavy rainfall during the winter months and cannot expect very copious down fall from now on.

Market: It is interesting to observe the pulsations of the honey market at times. During the time the crop was being harvested and continuing well into the winter there was great demand for the crop as a whole and also for five-pound pails. These five-pound containers are the only retail package we fill and are intended only for local sales to people who ask for honey. We had our usual supply but began to think that we would run short when, bang, the demand practically stopped and it is only occasionally any one calls for honey now. We wonder how far-reaching this reaction really is.

We have heard experienced men say, "The production of honey is one line of endeavor, and the packing and distributing is another, and one man should not attempt to carry on both". We think they are right. Brokers call occasionally, not that they expect us to have any '43 honey left, but with an urgent appeal that we sell them at least a part of the '44 production.

Honey Crop: The '44 crop is all in the blossom yet but the prospects are fifty-fifty that we will get some honey this year. The last of the '43 crop, 65,000 pounds, was loaded on a car for Denver April 1st.

Miscellaneous: We sometimes won-

der if the bees are disturbed as much by the constant roar of airplanes overhead as the people are. Several air bases and landing fields are located within 20 miles and they keep up a constant roar in the air during much of the daylight hours.

Bees are being moved to the orange groves and some early blooming trees are quite full of blossoms. For some reason the trees growing in town around the homes are the first to come into bloom. Perhaps it is the irrigation and constant care that brings this condition about. Just how freely nectar is secreted in this early bloom we are unable to say but the fragrance from the blossoms is very pronounced as one moves about during the evening hours. It will be some weeks before the bloom will be out in full on the orange groves.

Some of the men who spend much of their time in the groves are predicting a very light bloom. Just what effect this might have on the amount of nectar they will secrete remains to be seen. We have often heard the statement when there was a heavy bloom that, "If one in ten of the blossoms sets an orange the crop will be heavy enough". 'Tis true we have seen the ground under the trees white with the bloom that fell without opening and yet there were plenty of oranges set on the trees. Here is hoping.

The sages and other honey-producing shrubs and flowers have not made the growth we might expect considering the amount of early rain we have had. It has been said that we seldom have two sage crops consecutively but we are hoping. True there is plenty of time yet and a rain with favorable weather conditions would paint us a much more promising picture.—L. L. Andrews, Corona, Calif.

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ARIZONA, March 30

Weather: The first part of winter was dry and mild. Our first moisture came the last few days of January, and from then to now it has been fairly satisfactory in this area. However, some areas of the State get very little rainfall. February and March temperature has been below the average, with considerable snow falling in some areas of the State.

Miscellaneous: Despite very cool weather locally the past two months bees have come through in very good condition. Pollen has been plentiful when weather was favorable for bees to work. There are very few wild flowers blooming yet due to continued cool weather. There was ice locally the past two nights. Warm weather would be appreciated. Condition of colonies varies considerable with each locality. In some places feeding has been necessary.

Reports are that S. E. McGregor from the Division of Bee Culture in the Bureau of Entomology and Plant Quarantine, has been sent to Arizona to make a study of crop dusting and poisoning of colonies. He is here to find a solution to the problem, and if successful it will be of great value to the entire bee industry where crop dusting is carried on. It is hoped a solution may be found to the problem.

Some honey bottlers report honey sales falling off since being limited to sale of honey in small jars. It seems the five and ten pound pails were very popular with the public in purchasing their supply of honey. Reduced sales may have been due to the difference in price per pound.

It is reported considerable acreage of cotton may be switched to alfalfa. This is due to shortage of cotton pickers. Beekeepers as usual are hoping for a good crop this season to make up for a light crop in many areas last year. But our crop will depend to a great extent on the weather from now until the end of harvest season.—Leslie Wedgworth, Oracle, Arizona.

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ONTARIO, April, 5

Weather: Winter is lingering in the lap of spring, and today it is cold following a low at night of 20 above. March was our coldest month of the winter and bees around our home base flew only twice. Snow has been on the ground in sufficient depth to protect clovers, and we have had no weather to cause "heaving" yet. Perhaps we may get a sudden change to warm weather soon, and we have an idea that bees

are not suffering by reason of being confined to their hives for so long, and with soft maples and early willows being held back, there is a chance of better weather for their later blooming period.

Condition of Bees: Naturally the query among beekeepers is "how have the bees wintered", and it is gratifying to be assured that no heavy losses are apt to be reported—at least not among bees that were given an abundance of stores last fall. We called up the Ontario Honey Producers' Co-operative for information on this matter, and the Secretary said that reports on wintering were almost universally good.

We have given only a superficial examination of about one third of our bees and no heavy loss appears to be in sight. A week ago, in company with one of my boys, we made a hasty call at six apiaries some 15 miles from home—about 320 colonies in all. We closed up only four hives and as they were heavy with stores, it was quite obvious that they had been queenless last fall. Of course, we may find heavier losses in other apiaries, but yesterday the boys visited our two apiaries in Wentworth County and found no loss at all.

As mentioned in last issue, the most important question facing the beekeepers of this part of Ontario, is the reduced acreage of honey producing plants, and unfortunately it is a problem hard to solve.

Miscellaneous: The high price of small containers as compared to the larger sizes, is, as might be expected, causing the bulk of the honey available to be put up in the small sizes. Sorry to say that much of this honey by reason of original quality, or because of improper handling, is not of the quality it should be to justify such high prices. Just yesterday we looked over a lot of small bottles in a local grocery near us, and while these bottles were marked "6 fluid ounces" and were selling for 18 cts. each, the quality was far from what it should be. Color would hardly justify a grading of "white", and granules were all mixed up with the liquid part, showing improper handling.

Twice during the past few days it was announced over the radio that the Government has decided to allow a subsidy of 50 cts. per pound on all package bees brought into Canada this spring, and also that 15 pounds of sugar per colony would be released for the spring feeding of bees where necessary. Have watched the daily papers since this announcement was made but have seen no mention of the matter, so only make this statement on authority of the announcer in charge of the farm broadcast. Personally, I had no thoughts about a subsidy and as a matter of fact, we have mixed feelings as to the wisdom of subsidies in a general way, even if admitting that they may be justified under exceptional circumstances. And we have heard of no demand for a subsidy among any commercial beekeepers we have spoken too. At any rate it will make but little increase in the amount of packages imported this spring, for the simple reason that there are few packages now available at any price.—J. L. Byer, Markham, Ontario.

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TEXAS, April 2

Weather: March has again demonstrated that she is the guardian which nature uses to stop the precocious in spring and to draw the line between life zones. The winter of 1943-44 came early. Plants, insects, and birds all recognized winter in early December and while the cold was prolonged no low temperatures occurred but, rather, a long quiescent period. Then came March gradually warming to almost the last day. Birds, from the hummer to the scissor-tail, arrived, also the flowers from the least to the bluebonnet, even mesquite, were fooled and put out their tags. The insects kept pace with the flowers; all reported for duty. The black Philnor sought and found her favorite swan flower. The tiger in its gorgeous purple and yellow looked for its horizon and found it. The bees prepared to swarm, and then with the month's end at hand came nature's command,"Thus far and no farther". Again nature equalizes her forces and draws the zones and limits.

The frost was a backset but the bloom yet to come will be more abundant and the bees will do their part. Wax is yet badly needed. Honey is needed not only as a food but as

the best sweet available to man. The migratory beekeepers are ready to go north as soon as possible. Every mail brings inquiries for bees and queens, or where beekeepers' supplies can be procured. From another set comes requests for information as to where honey can be purchased, from a pound up to tons.

Miscellaneous: During this long cool month it was very interesting to watch the pollen-gatherers with their loads. Most of them brought the greyish white round pellets of pollen from the early nettle. A few carried greenish ones from mistletoe. Here and there a heavily ladened worker carried two huge balls of orange red from the bluebonnet, but the most ridiculous of all were those bees that had worked in the cobwebby pollen of the Mexican primrose. Their bodies, even the wings, had a sprinkling of yellow dust.

In discussing beekeeping after the war with those who know both ends of the game and the place which beekeeping holds in the future, it is the consensus that due to the importance of the honeybee in pollination and due to the loss of insect pollination not cared for by man through cultivation, paving and building, the beekeeper must come to the rescue and provide at least one hive of bees for at least every two acres in food crops other than grain.—H. B. Parks, San Antonio, Texas.

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MICHIGAN, April, 17

Weather: A rather open winter brought the bees through much better than last year. Slight precipitation during the winter has been offset by the recent spring rains. **Steady** temperatures have prevented heaving of clovers. Prospects look fair to good.

Bees: The late spring has delayed brood rearing. Many colonies are light in stores, some have starved, considerable feeding will have to be done immediately. Population of colonies is normal or slightly above.

Plants: In the heavy soils areas much clover and alfalfa was turned under for beans and beets. Sweet clover seems to be gradually passing out of farm practice in some areas. Beekeepers are beginning to consider the necessity of cooperating with neighbor farmers to furnish seed and locate bees where they will do the most good for seed and fruit production.

Miscellaneous: Honey is practically gone from producers. Sales have slowed some from competition of cheap syrups and very poor quality strong-flavored honey in bottles. This poor honey should have gone to industrial users. It is doing good honey no good in retail packages.—R. H. Kelty, Lansing, Mich.

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NEBRASKA, April, 7

Weather: We had an unusually mild winter until March, then Old Man Winter seemingly tried to make up for lost opportunity. Cold, blizzards, snows, and high winds continued throughout the month of March, evening up the general law of averages. The outlook for honey plants was none too good as we had a very dry fall and winter; however, precipitation in March will aid greatly.

Condition of Bees: Due to cold weather running well over into what the calendar proclaims is spring, beekeepers have had little opportunity to go through the hive to ascertain the exact condition. Little is known at this writing except whether the colony is alive or dead. Those with ample fall stores should have come through in good shape.

Market: Strong demand continues with no honey to satisfy clamoring customers. Dark honey of inferior flavor is to be found in small containers on some retail grocers' shelves. Probably this is all that is left, and in trying to retail this, the honey industry will receive no benefit. Prices are extremely high on these small containers.

Condition of Honey Plants: Prospects appear to be none too good. Sweet clover pasturage is urgently needed and increasingly difficult to find.

Miscellaneous: It is gratifying to note that farmers are more and more becoming convinced of the value of bees in alfalfa and sweet clover fields. Invitations to move bees to their alfalfa fields have sharply increased. This is advantageous to the beekeeper in late fall only when the blossom is left undisturbed to pro-

duce seed. After fruit bloom, however, an earlier source of nectar is imperative and the sweet clover plant is the beekeeper's best supply.

If beekeepers have a little spare time this year, it might well prove a paying proposition to trap bees from buildings. This brings to mind a trapping experience of the writer. Last year an SOS came from the owner of a brick building in which bees had taken up their abode. Placing a funnel trap over their original entrance partially backfired—for some of the inhabitants found a new entrance. The hive became too heavy about midsummer, so it was replaced with a second one. The new entrance was solidly plugged so the bees had to come out of the funnel trap. The first colony produced well over one hundred pounds of surplus and the second colony built up to good strength for wintering.—Benj. Nielsen, Aurora, Nebr.

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VERMONT, April 13

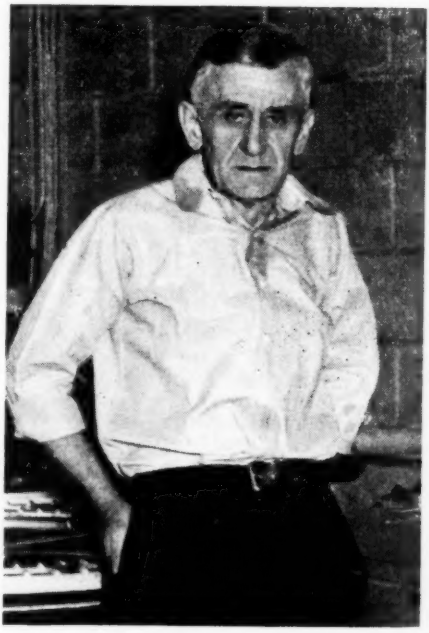
Weather: According to weather reports from magazines and Government bulletins, the Northern part of New England appears to be the only part of the U. S. that has had a real winter just past. Starting with a real blizzard on Thanksgiving, the ground has remained covered with snow until the middle of March. On about 40 days did the temperature go below zero, but due to snow did not freeze the ground much. Since early November, not until April did the bees get a good flight and they have done very little flying since then. Weather is still cold and no pollen as yet available.

Bees: In spite of the long cold winter bees have wintered very well. All bees are wintered outdoors and not more than three or four out of 800 seemed to have winter killed. We seldom have loss from wintering no matter how hard the winter; but the spring—that's another matter. What loss we do have will come between now and the middle of May.

Prospects: Moisture conditions are more than ample for the time being, clovers seem to have wintered well, and the prospects to date look good. But—. We wonder what the **but** will be this year to interfere with that bumper crop we always look for every season.

Market: Market for honey continues good in spite of a considerable quantity of poor quality honey on local markets. We have long since stopped selling wholesale and the market is already waiting for the new crop.—Charles Mraz, Middlebury, Vt.

Passing of L. H. Benninghof



Leo H. Benninghof, of Columbus, Ohio, one of Ohio's largest commercial honey producers, also a handler of honey, passed away on April 4, at the age of 55.

Not satisfied with inefficient methods of extracting and processing honey, Mr. Benninghof recently completed the construction of a new up-to-date honey house. It has a number of novel labor-saving devices and is a credit to the beekeeping industry.

Mr. Benninghof, known to beekeepers as "Benny", was an enthusiastic beekeeper and a good business man who did much to further the interests of our industry. He will be missed.

Feeding of Honey to an Infant

By U. F. Abbs

For those of you who are reluctant about using honey in your infants' diet I would like to relate our experiments and knowledge gained along this line, and thus dispel from your minds all fear of doing any harm whatsoever to the infants' health.

After spending the required number of days in the hospital my wife and baby daughter were discharged and with them went a feeding schedule, formula, and some of the formula already prepared for use. We arrived home safe, happy, and at peace with the world, but not for long, for after a short time the supply of prepared food was exhausted, and it so happened that it was late at night, hence no stores were opened from which the necessary ingredients could be purchased. What to do for a hungry, crying infant? That was the big question confronting us. I recalled having read in several books of feeding infants on Honey Water but how it was prepared I didn't have the least idea so I glanced through the various books I have on honey and finally sifted it down to this formula:

One tablespoonful of honey to four ounces of boiled water. We fed her this mixture and it satisfied her hunger, consequently pacifying her. She was permitted six formula feedings in a day so we started in after that successful experiment and omitted one of the formula feedings and substituted one of honey water. We gradually increased the amount each week until she was taking three tablespoonsful of honey to eight ounces of boiled water. If at any time her bowels became too active we reduced the amount of honey, likewise at any sign of slowing up we increased the amount slightly until the condition was remedied, then returned to the regular schedule. After four months we gradually eliminated the honey water.

In conjunction with the honey water and commencing on her 14th day after birth we fed her orange juice during the day time and about one hour before her formula feeding. We gave her a mixture of one-fourth teaspoonful of fresh orange juice and one teaspoonful of boiled water sweetened with a little honey. You will notice that I state an hour before a formula feeding. The time element is important for we found that if less than an hour elapsed she was troubled with gas. We learned this very quickly. We likewise increased the amount of orange juice and water she was taking a little each week, and if it agreed with her we held it there; if not we dropped back to the previous week, and then tried again the next week. No ill effects were experienced in these experiments. After a while we decreased the amount of water until at six months she was drinking straight orange juice, and if at any time it was not sweet enough a little honey was added. After her third month she stalled on orange juice and we alternated it with canned unsweetened pineapple juice in the same type of mixture, and this was also satisfactory. She was fed only one fruit juice feeding a day and this satisfied her for two hours.

During the first month, in spite of her honey water and fruit juice feedings, she was troubled with constipation so we omitted the sweetening agent set forth in the hospital formula, and used about one-half as much honey by volume as called for of other sweetenings. This we found to be about equivalent in taste to the other mixture. In all future formula mixtures given her we substituted honey in one half the amount of sweetening prescribed, and she has not been bothered with constipation since changing over to honey. She now is permitted other foods, and when sweetening is necessary we use honey. We also found that one type of honey is as good as another. We have tried thus far fancy clover, orange blossom, raspberry, fruit blossom, and that from my own hives in which wild aster and goldenrod predominate. She went through all last winter without a cold although she was in contact with those who had one. She also cut eight teeth before she was eight months old without any trouble, and was never bothered with colic. She weighed seven pounds at birth and is now one year old and weighs over twenty pounds. and is walking. From these facts you can readily see it did not retard her growth; if anything honey assisted it.

Pittsburgh, Pa.

Editorials

Rain and more rain during early April prevented bees from collecting pollen needed for brood rearing. Colonies on the whole are in good condition in the vicinity of Medina. Reports from over the country are quite favorable. It is hoped warm bright weather may prevail during the dandelion and fruit bloom flow for a favorable build-up of colonies for the major flow later on.

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Sugar for Bees A beekeeper needing sugar to feed bees may obtain a provisional allowance of ten pounds per calendar year for each hive of bees by applying as an industrial user. The period from April 28 to December 31 is considered a full calendar year. Applications should be made on O P A Form R-315.

A beekeeper who gets a provisional allowance, may, in each calendar year, obtain an additional provisional allowance if it is needed to save the life of bees. The application must state the amount needed, the number of colonies to be fed, also that the additional sugar is needed to prevent loss of the industrial user's bees.

The application must also have the certification of the local U. S. Department of Agriculture War Board that the additional sugar is needed to prevent loss of bees. The additional provisional allowance granted to an industrial user must not exceed 15 pounds for each colony of bees during the calendar year.

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Don't Overlook Fifteen Pounds Minimum The last part of May and early June is a critical period for bees, especially in the North. There is usually some nectar available from fruit bloom, dandelion, and other sources during early May and in some parts of the North, up until about June 1.

When weather is favorable, strong colonies are likely to store enough during fruit bloom and dandelion to carry them over until the main flow starts during June. If weather should be unfavorable, some colonies are likely to starve before the clover flow begins.

Authorities have been telling us for years that at no time during the season is it advisable to allow the stores in a hive to get below 15 pounds. This is a good rule to follow. When colonies reach this minimum of fifteen pounds which is equivalent to about three standard filled combs of honey, sugar syrup or combs of honey should be supplied because during a protracted cool rainy spell of weather stores in a populous colony disappear as if by magic. We should take no chances.

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Produce More Wax and Honey—but How? Many commercial honey producers also producers of packages and queens, are asking just how they can increase honey and wax production when most of their efficient labor is inducted into military service.

One large honey producer says that unless he can secure help soon he will gas his bees, salvage the wax, and close up shop until the war is over. He cannot dispose of his bees to other producers because they are in the same boat.

Surely something will have to be done to prevent bees from being destroyed when they are needed so badly for pollination and honey and wax are in such great demand.

Looks as though the powers that be had better get their heads together and keep them together until this problem is settled.

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Cappings from Thick vs. Thin Extracting Combs There has been not a little speculation on this matter. It has seemed rather obvious to us that more wax would be secured from extracting combs spaced 8 to each 10-frame super than from combs spaced 9 to each 10-frame super.

To our knowledge no strictly scientific experiments had been conducted, to find the answer, until C. A. Jamieson of the Central Experimental Farm at Ottawa, Canada, tackled this problem last summer. (See pages 188 and 189 this issue.)

The amount of wax gained per super, approximately one ounce, in using 8 instead of 9 combs in an extracting super, is relatively small. However, this small amount per super would add up rapidly in commercial production.

The reduction in labor of uncapping combs in extracting is a factor worthy of consideration, especially during this labor shortage.

Every extra ounce of wax produced this coming season is needed to help win the war

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Honey and Cane Syrup. Will It Lead to a Black Market Practice? During these war times light-colored table honeys are becoming scarce. Now we are beginning to see on some of the grocery shelves honey and cane syrup with the proper declaration on the label. The reason for this is that it is difficult and almost impossible to get light-colored honey to take care of ordinary home trade, therefore, why not take a darker-colored honey and put in cane syrup, both to lighten the color of the honey and reduce the strong flavor of the darker honey. This is perfectly legitimate provided the mixture is declared on the package.

Information has come to us that some of the large packers put out quantities of honey and cane syrup, properly labeled, of course. While a packer can put out such a product without state or federal restrictions, the question will be, would such a mixture come under the price ceiling? This will be a question for the O P A to settle. Assuming, of course, that such a product can be sold in quantity (and there is no doubt but that there will be a market for it) would there not be a temptation on the part of the packer to put in less than the percentage called for on the label, and after all, would his conscience allow him, later on, to put out the mixture without any declaration on the label? In other words, is there a danger that we have run into a black market practice that could easily carry over into peace times as well?

It may be said in defense of the proposal that for many years a mixture containing part maple syrup and part cane syrup has been sold. Some people prefer the mixture to the pure maple syrup, on the ground that the milder flavor is more pleasing. Others prefer it on account of the lower cost.

This practice has been going on for years and we are reliably informed that packages containing those mixtures are properly labeled.

Now comes the question—why not do the same thing with honey when it is so scarce? Would using this mixture help get rid of the darker honeys in peace time? A pure white or sweet clover or alfalfa unmixed would then have to compete with a stronger flavored dark honey softened down with cane syrup. The situation would be made very much worse if there were some unscrupulous packers who would "fortify" their so-called pure honey with maple syrup or glucose and **not declare it on the label.** Could we catch these rascals? If it is difficult to stop black marketing in other foods, it might be difficult to stop packers who would fortify their honey with a cheap syrup without a declaration.

These are all questions that the future will have to answer. The danger is that if we start something like this during war times, what will happen during peace times when there is plenty of good white table honey?

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Moving a Whole Apiary Without Handling a Single Hive. This is outlined on page 190 of this issue by Mr. Leon C. Nieb. While an extracting outfit and building has been moved in this way, we do not recall that anyone has before attempted to move a whole yard of bees, yard and all, except by river. It saves time, saves bees, and saves stings. Neither grass nor weeds obstruct the entrances and each colony can be operated on an aisle between the hives.

In the days before motor or big truck and trailer transportation was available, such a project would not have been possible. But even with these, there must be good roads and a hard sandy soil or the whole outfit would be bogged down in the mud after tropical rains. Where there is but one main honey flow, with perhaps a minor fall flow, the old permanent out apiary plan would be the more feasible and cheaper, but on the other hand, in the semi-tropics, such as Florida and southern California where there are numerous honey flows in areas not too far removed, Mr. Nieb's plan of moving a whole yard of bees on one big platform would be the more profitable because it could catch regional honey flows that could not be obtained at a permanent out-apiary.

Drifting Hives of bees are, as a rule, spaced too close together. In the old days we recall seeing hives placed together, almost touching, on a long bench. They were operated from the rear which, by the way, is an advantage from the standpoint of keeping out of the way of the bees.

With hives placed too close together, bees are bound to drift from one hive to another. This is one way to spread disease if it is prevalent in an apiary.

To avoid drifting, hives should be at least four to six feet apart and if possible there should be some objects in the apiary, like shrubs or stumps, to help bees to locate their own hives.

When an apiary of, say, fifty or sixty hives are placed close together in an open space with no trees or shrubs, the bees are bound to drift into certain hives, especially in the spring of the year when they take their first cleansing flight. This is more in evidence when a strong wind blows. The bees appear to drift to the windward side of the yard and in some instances will crowd into a few hives, while other hives on the opposite side of the yard are practically destitute of bees.

It is well to take time out to locate hives properly when the apiary is started.

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"Farmers Are Alfalfa Minded" The above is the title of an article appearing in the Indiana Farmers' Guide for February 15, 1944.

Alfalfa is a popular legume with farmers because it helps to insure good pasture of a high protein content. It stands for a number of years and can be cut from three to five times in one season. In many communities, farmers have noted how productive the soil was after old stands of alfalfa had been broken up. It is a soil-builder.

Where does the beekeeper come in? It used to be said that alfalfa did not yield nectar to any extent east of the Mississippi River, except possibly in one part of New York State. During recent years, reports have come in from various sections of the country which indicate that alfalfa actually does yield nectar under certain conditions. During wet seasons, alfalfa yields little, if any, nectar east of the Mississippi. During very dry seasons, it does give some nectar. It is a deep-rooted plant. During dry weather the roots reach down into the sub-soil for moisture.

Alfalfa is more than a minor source of nectar and it helps to insure a crop, especially during dry seasons.

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Keep Ahead of the Bees It is amazing how much nectar populous colonies will store during a relatively short period of time, when soil and atmospheric conditions are just right for nectar secretion. It is not uncommon to have a strong colony on a scale hive gain fifteen pounds in weight during one day. A few years ago a populous colony in Michigan was reported to have gained over 30 pounds in a day and the same hive of bees stored over 700 pounds surplus during the season.

Let us visualize, if possible, how much comb space the nectar that made the 30 pounds of honey carried during one day, would occupy. It is said on good authority that the average run of nectars have around 30 percent sugar content. Roughly, then, fresh nectar is approximately two thirds water. The 30 pounds of honey would occupy five or six standard combs and the nectar that produced this honey would occupy about fifteen combs, or the equivalent of a super and a half of combs, before the bees expelled the excess moisture by fanning.

It is thus obvious that bees need ample comb space for storing nectar and evaporating the water content. Failure to provide needed comb space brings on congestion which is said to be the main cause of swarming.

The season ahead may be the one for which beekeepers in clover areas have been looking. We implore beekeepers to put on supers early in order to control swarming, also to secure the maximum crop of honey and wax which are needed so badly.

If, perchance, the bees should not fill all the supers—no harm done. It is better to have them on the bees rather than in the apiary house being riddled with moths during warm weather.

Another thing—if top supering is practiced the bees will use only as many supers as are needed to hold the crop.

Spinster Jane Says

By the calendar it's spring, but **common sense says it's still winter.** People are still wearing their winter coats—needing them too. I wouldn't know this, having hibernated, more or less, this winter, but I have just spent a week in the city. Of course I had to wear my winter coat, and I wanted to know if I would look like a freak in mine, or would there be others as freakish. Yes, vanity is the last thing that dies in either a man or a woman, and wearing clothes that do not draw people's attention and which you know do not set you up as any different from the general run of folk—well, such clothes are surely a great builder-upper of one's morale. I was curious to know if the Eastertide season would bring its usual parade of spring styles, or were people becoming more sensible by making what they had, do. Well, I found out. Some few were out in new spring suits, but most still wore warm galoshes and winter coats. Yes, spring is late this year.

And the roads! Where the frost is out, they are quagmires of mud. This does not apply to our trunk roads that are kept in good shape, but there are small banks of snow left along their sides by the snow plow, after the recent big snow storm.

Though warm spring weather delays its coming, we have had a memorable winter. There was fairly good motoring all winter, and we so far north!

Bees wintered outside came through much better than those kept in the cellar, as was to be expected. Boy brought all hives out of the cellar about three weeks ago, when water began coming in. He parked them against the front of the house where they have a southern exposure, and get the benefit of sunshine. He had just nicely got them outside, when overnight a big snowstorm came, blanketing them warmly—a mighty fine thing for them, too, as it made them stay "put" until the weather warmed up. His loss was pretty heavy, but if he gets his sugar here to feed them in time, I think all should come through safely. We don't expect any more big snowstorms, and having his sugar permit, am sure there will be no delay about that as feeding means everything to bees in the spring.

Boy blames himself entirely for his loss. Year after year he has lost through cellar wintering. Our cellar is as cold as a vault, and is always flooded with water in the early spring freshets. They say a continual dropping will wear away the hardest rock, so these losses have worn out his procrastination, and we look to see a good wintering bee-cellar, or house, before the fall. Back numbers of bee magazines have been searched and poured over, and all available information gathered on the building of this bee-cellar. By early autumn, he hopes to have new winter quarters, large enough to hold his present swarms, and all worthwhile early swarms. This he considers a necessary move, much more sensible than buying more bees and equipment, and losing them through improper wintering.

About a week ago, on his last "long change", he sharpened his axe, and spent a day in the bush, along with his dad, cutting timbers and cedar for shingles, and he enjoyed it greatly. To get his lungs filled with pure fresh country air, was surely a treat after weeks of breathing in sulphur fumes from the big smelter. Fresh air and old Sol's friendly rays surely work miracles—one of the fine things in beekeeping.

How much we look forward to the day when final victory for our allies is achieved, and peace comes once more. What plans we are making! How we long for that great day! And how proud we are of our boys in the service. Here in our small community we have a big honor roll to be unveiled in the one church here. It contains the name of every one of our boys serving king and country, and will proclaim to all who read it our pride in these boys, and our wish to honor them.

Honey is becoming not a luxury, but a staple food, and may every beekeeper this year do his biggest to make 1944 the best honey year yet. Sugar is still short and honey to take its place must be produced. The most possible, of the best grade, should be our ultimatum.

Who's Who in Apiculture

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping, and other information often needed by our readers, we have corrected our "Who's Who in Apiculture", as of April 1, 1944.

State or Prov.	Beekeeping Taught in Agri. College	Bees on Combs Admitted	Net Wt. Law Ex. Comb		Inspector State or Province	Secretary State Association
Ala.	Yes	No	Yes	Yes	Chas. A. North, Montgom.	F. E. Guyton, Auburn
Alta.	No	Permit	Yes	No	W. G. leMaistre, Edmonton	W. G. leMaistre, Edmonton
Ariz.	No	Cert.	No	Yes	Paul R. Grant, Phoenix	Paul R. Grant, Phoenix
Ark.	No	Cert.	Yes	Yes	Paul Millar, Little Rock	I. E. Nantze, No. Lit. Rock
B. C.	No	No	Yes	Yes	A. W. Finlay, New West.	A. W. Finlay, New Westm.
Calif.		Cert.	Yes	Yes	H. M. Krebs, Sacramento	Thomas Davis, Sacramento
Colo.	No		No	No	F. Herbert Gates, Denver	F. Herbert Gates, Denver
Conn.	Yes	Cert.	Yes	Yes	R. B. Friend, New Haven	Chas. J. Rost, Meriden
Dela.	No	Yes	No	No		Harvey L. Chada, Newark
Fla.	No	Cert.	Yes	Yes	Robt. E. Foster, Gainesv.	W. H. Williamson, Auburn
Ga.	No	Permit	Yes	Yes	A. V. Dowling, Valdosta	W. P. Yarabraugh, Hahira
Idaho	No	No	Yes	Yes	D. A. Stubblefield, Boise	Chas. Williams, Meridian
Ills.	Yes	Cert.	Yes	Yes	Carl E. Killion, Paris	Hoyt Taylor, Pleasant Pl.
Ind.		Cert.	Yes	*Yes	Jas. E. Starkey, Indianap.	Jas. E. Starkey, Indianapo.
Iowa	Yes	Cert.	Yes	No	F. B. Paddock, Ames	F. B. Paddock, Ames
Kans.	Yes	Cert.	No	No	R. L. Parker, Manhattan	W. N. Cline, Fredonia
Ky.	Yes	Cert.	No	No	W. A. Price, Lexington	W. A. Price, Lexington
La.	Yes		Yes	Yes	W. E. Anderson, Bat. Roug.	Warren Whitcomb, Bat. R.
Me.	No	No	Yes	Yes	Paul T. Caines, Winthrop	Chas. O. Dirks, Orono
Man.	Yes	No	Yes	Yes	L. T. Floyd, Winnipeg	F. R. Garland, Winnipeg
Md.	Yes	Cert.	Yes	Yes	Geo. J. Abrams, Col. Park	Geo. J. Abrams, Col. Park
Mass.	Yes	Cert.	Yes	Yes	Burton N. Gates, Boston	E. F. Trainor, Worcester
Mich.	Yes	No	Yes	Yes	D. P. Barrett, Lansing	R. H. Kelty, E. Lansing
Minn.	Yes	Cert.	Yes	Yes	T. L. Aamodt, St. Paul	A. G. Ruggles, St. Paul
Miss.	Yes	Cert.	No	No	Clay Lyle, State College	Clay Lyle, State College
Mo.	Yes	Yes	Yes	Yes	No official inspector	Henry H. Baker, Columbia
Mont.	No	Permit	Yes	Yes	Jos. F. Reinhardt, Bozeman	Mrs. O. D. Burdett, Laurel
Nebr.	Yes	Cert.	Yes	Yes	Leroy M. Gates, Lincoln	Mrs. Henry Ruppe, Neb. C.
Nev.	No	No	Yes	Yes	Geo. G. Schweis, Reno	No state association
N. B.	No	Cert.	Yes	Yes	Ersel F. Moore, Fredricton	Wm. Thorpe, Fredricton
N. H.	Yes	Cert.	Yes	Yes	Will E. Clough, Gilmanton	Henry J. Holt, Manchester
N. J.	No	Cert.	Yes	Yes	P. L. Holcombe, Lambertv.	Elmer J. Carr, Pennington
N. M.	No	Cert.	Yes	Yes	J. R. Poe, State College	No state association
N. Y.	Yes	Cert.	Yes	No	A. C. Gould, Albany	Ed. T. Cary, Syracuse
N. C.	Yes	Permit	Yes	No	P. G. Craddock, Raleigh	F. B. Meacham, State Col.
N. D.	Yes	Cert.	Yes	No	J. A. Munro, Fargo	Arvid Benson, Moorhead
N. S.	Yes	No	Yes	Yes	H. G. Payne, Truro	Evan D. Craig, Kentville
Ohio	Yes	Cert.	Yes	Yes	Chas. A. Reese, Columbus	W. E. Dunham, Columbus
Okla.	Yes	Cert.	Yes	Yes	J. M. Goin, Okla. City	J. M. Goin, Okla. City
Ont.	Yes	Permit	Yes	No	G. F. Townsend, Guelph	G F. Townsend, Guelph
Ore.	Yes	Cert.	Yes	Yes	A. Burr Black, Salem	John D. Burt, Newberg
Pa.	No	Cert.	Yes	Yes	Harry B. Kirk, Harrisb.	H. M Snavely, Carlisle
Quebec					Jules R. Methot, Quebec	
R. I.	No	Cert.	Yes	Yes	Howard A. Pike, Conimi.	O. Evert Johnson, Provi.
Sask.	No	No	Yes	No	R. M. Pugh, Ft. QuAppelle	R. M. Pugh, Ft. QuAppelle
S. C.	Yes		Yes	Yes	J. A. Berly, Clemson Col.	W K. Moore, Sandy Sprgs.
S. D.	Yes	Cert.	Yes	Yes	A N. Pastian, Brandon	
Tenn.	Yes		Yes	Yes	No official inspector	J. M. Allison, Lewisburg
Texas	Yes		Yes	Yes	F. L. Thomas, College Sta.	H. B. Parks, San Antonio
Utah	No	Cert.	Yes	Yes	Wm. Moran, Salt Lake C.	Wm. Moran, Salt Lake Cty.
Vt.	No	Yes	Yes	Yes	Rodger Jones, Johnson	Chas. Mraz, Middlebury
Va.	No	Permit	Yes	Yes	H.W.Weatherford, Ver. Hill	H. W. Weatherford, Ver. H.
Wash.	No	No	Yes	Yes	R. E. White, Olympia	R L. Longanecker, Wapato
W. Va.	No	Cert.	Yes	Yes	F. Waldo Craig, Charleston	No state association
Wisc.	Yes	Cert.	Yes	*Yes	James Gwin, Madison	H J. Rahmlow, Madison
Wyo.	No	Cert.	No	No	B. Thomas Snipes, Powell	H. B. Addleman, Douglas

*If in package form.

United States— Investigation and Demonstration in Beekeeping, James I. Hambleton, Bureau of Entomology and Plant Quarantine, Beltsville, Md.; Southern States Field Laboratory, W. W. Whitcomb, Baton Rouge, La.; Pacific Coast Laboratory, Geo. H. Vansell, Davis, Calif.; Inter-Mountain Laboratory, A. P. Sturtevant, Laramie, Wyoming; Bee Culture Field Station, C. L. Farrar, Madison, Wisconsin; and University of Arizona, Tucson, Arizona.

Dominion of Canada—Investigation and Demonstration in Bee Culture, C. B. Gooderham, Dominion Apiarist, Experiment Farm, Ottawa, Canada.

Apiary Inspectors of America—Chairman, Charles A. Reese, Columbus, Ohio.

Bee Industries Association—Chairman, Alan Root, Medina, Ohio; Secretary, R. L. Dadant, Hamilton, Illinois.

National Federation of State Beekeepers' Association—President, Oscar H. Schmidt, Bay City, Michigan; Secretary, V. G. Milum, Champaign, Ills.

American Honey Institute News Notes

Far-sighted business people are now building a clientele that will be an asset after the war.

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Someone has said that more progress is made in industry during a few years of war than during 100 years of peace. Two of the largest business concerns of their kind in this country are experimenting in using Honey with their products.

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The Tea People are suggesting Honey with tea. Orange Pekoe (pronounced Peck-o) refers to the size of the leaf—not the taste or quality. It refers only to black teas of the East Indies.

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After a food magazine with nationwide coverage made the announcement that the **American Honey Institute** would furnish window streamers gratis for Honey for Breakfast Week, the first four requests came from New York, California, Texas, and Minnesota. The request from Minnesota was answered with sets of four streamers for 100 stores in Minnesota and Wisconsin.

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The cover page of the April issue of "Gourmet" will have a picture of popovers with a comb of luscious Honey.

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GOURMET— The Magazine of Good Living, has good reading—good pictures—good advertisements. We were especially interested in the advertisement on **Apiphene.** The advertisement in the March issue stated that it comes from the Southwest and is as much a funny honey as ever we have seen. One is to chew it like gum. It says, "The stuff is the comb and combwax, a natural product of bees which sip the nectar of desert plants in the Southwest." The price is $2.50 for four ounces or enough chews, three times a day, to last for almost a week.

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Potatoes and cabbage are two of the no-point foods that should be used generously today. We have been asked to stress no-point - low-point foods.

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One can spend an enjoyable and profitable evening with choice magazines, as you well know from reading the bee journals. The April issue of "Country Gentleman" gives Honey more than half of the space of the printed column "From Our Kitchen to Yours." In this same issue Nola E. Wibel says, "It's a birthday in our house today—but no cake this year. We're using our sugar for the cookies and cakes that go to our boys in the camps. Even then there isn't enough, so I use honey by the gallon. It gives cakes additional moisture which is retained even after two weeks of storing or shipping."

Mr. Glenn O. Jones has an interesting article on "A True Perennial Clover" that has been found by Mr. Pellett, and at the bottom of the "Shorts and Middlings" column we find an American Folk Jingle about bees.

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Serve Honey Egg Nog for dessert.

Beekeeping War Council—President, L. M. White, Portland, Oregon, Secretary, Roy A. Grout, Hamilton, Ill.
Southern States Beekeepers' Federation—President, L. M. Dewey, Merritt Island, Ga.
American Honey Institute—Chairman, Lewis W. Parks, Madison, Wisconsin.
Honey Packers Committee—Chairman, John G. Paton, New York, N. Y.
Canadian Beekeepers' Council—Secretary, R. M. Pugh, Fort Qu'Appelle, Sask.
Texas Apicultural Research Laboratory—H. B. Parks, San Antonio, Texas.
Extension Specialists in Beekeeping—Alabama, W. A. Ruffin, Auburn; Alberta, W. G. le Maistre, Edmonton; California, J. E. Eckert, Davis; Connecticut. L. B. Crandall, Storrs; Delaware, Harvey L. Chada, Newark; Florida, R. E. Foster, Gainsville; Illinois, V. G. Milum, Champaign; Indiana, G. E. Lehker, Purdue University, Lafayette; Iowa, F. B. Paddock, Ames; Louisiana, Walter McGregor, Baton Rouge (in Army); Manitoba, L. T. Floyd, Winnipeg; Maryland, George J. Abrams, College Park; Massachusetts, F. R. Shaw, Amherst; Michigan, R. H. Kelty, East Lansing; Minnesota, M. C. Tanquary, St. Paul; Mississippi, Clay Lyle (part time), State College; Missouri, Henry H. Baker (part time), Columbia; Nebraska, Dan B. Whelan, Lincoln; New Brunswick, William Thorpe, Fredricton; New Hampshire, J. R. Hepler, Durham; New York, E. J. Dyce, Ithaca; North Dakota, J. A. Munro, Fargo; Nova Scotia, H. G. Payne, Truro; Ohio, W. E. Dunham, Columbus; Oklahoma, Charles Styles, Stillwater; Ontario, G. F. Townsend, Guelph; Oregon, H. A. Scullen, Corvallis; Pennsylvania, John Amos, State College; Saskatchewan, R. M. Pugh, Fort Qu' Appelle; South Carolina, E. S. Prevost, Clemson; Virginia, H. W. Weatherford, Vernon Hill; Washington, R. L. Webster, Pullman. (Where we did not hear from a state we repeated last year's listing.)

Asked and Answered

Bees and Grapes

Question.—Do honeybees sting grapes? We have a neighbor who says they do. I don't believe it, but can't prove it.—Geo. E. Fox, Ohio.

Answer.—Bees do not puncture ripe grapes. This statement has been definitely proven. Bees will suck the juice out of grapes after they have been punctured by birds when the grapes are ripe. This question comes up periodically it seems. The general consensus among those who know is that it is impossible for bees to puncture grapes.

Weed Killer Used Around Hives

Question.— I am desirous of using a weed killer to keep down weeds in my apiary. Do you know of any substance which would kill for the season?—James O. Ashbaugh, New York.

Answer.—We have tried various things to kill weeds around hives. Salt sprinkled around the hives does very well. However, during the latter part of the season, some weeds and grass may appear. The best thing we know of is a weed killer that comes in liquid form to be sprinkled where weeds and grass grow. This does the job thoroughly but the trouble is the chemical is somewhat costly, although not exorbitant when its effectiveness is considered. The weed killer we used was mixed with water, 40 to 1, and the price was $3.75 per gallon.

Number of Worker Bees in a Pound

Question.—How many worker bees are there in a pound of bees?—J. O. Greer, O

Answer.—During the years there have been various estimates on the number of worker bees in a pound. Years ago we were told there were approximately 5,000 worker bees in a pound. As a result of some late work done on this question, the number of bees has been estimated at approximately 3,500. We believe that the number depends to quite an extent on how full of nectar the bees are when weighed, also on the density or sugar content of the nectar. We have had in mind conducting an experiment as follows: Weigh up a pound of bees taken from a hive during the middle of the day when a heavy flow is on. Get the weight immediately after the bees are taken from the hive, filled with nectar, then keep the bees in a cage and weigh them every six hours for four days, tabulating the weights to determine how much weight is lost in successive weighings. It is said that four days are required for nectar to pass through the intestinal tract of honeybees. By the end of the fourth day the bees would be virtually empty and should weigh considerably less than they did immediately after being taken from the hive on the first day. Possibly we will do this experiment this coming season and report later.

How to Get Honey in Sections Used for Bee Food

Question.—I was wrongly advised concerning a colony of bees which I purchased last fall. I supposed I was getting a Standard ten-frame hive with a shallow super with frames, but recent examination shows the super is full of section comb honey. We don't want the queen laying in the sections. I have sugar to feed this colony through to dandelion and fruit bloom if the super should be removed, although I imagine they should have this section honey as there is not more than five pounds of honey remaining in the hive body. The colony appears to be in good condition, covering five frames. They were wintered outside, but in an ideal windless location. My plans are to make it into a full two-story hive, and build it up for the clover and fall flows.—F. D Simpkins, O.

Answer.—If the comb honey super contains sections that are quite well filled, this honey will answer for bee food. It seems unlikely that bees will go up into the sections to lay eggs. However, if these sections have been drawn from full sheets of foundation and consist of worker cells there is a possibility that the queen may be attracted into them when the combs in the brood chamber proper have all been used by the queen. If you wish to get this section comb honey all used up this spring, you should place the comb honey super underneath the bottom brood chamber, directly on the bottom board. You will find that the bees will carry the honey out of the comb honey sections into the brood chamber above. These sections will thus be cleaned out thoroughly and you can use the sections for the storage of surplus honey later on when the clover honey flow starts. The procedure we have suggested will get all of the honey cleaned out of the comb honey sections and utilized as bee food. It would seem inadvisable to put another hive body or brood chamber on your brood chamber until settled warm weather comes and nectar is being stored freely. At least the bottom chamber should be filled up quite well in order

that the bees may enter another super that you may put on.

Amount of Honey Used When Substituted for Sugar in Recipe.

Question.—I am interested in how to use honey in cooking, for example, where I use two cups of sugar, how much honey should I use?—L. C. Cooper, Texas.

Answer.—When you use honey instead of sugar in a recipe you should use one fifth less honey than sugar. In other words, if you use a cup of sugar you should use 4/5 cup honey.

Hiving Swarms

Question.—I have been handling bees for five years and do not have very good results in hiving swarms. They nearly always go in a hive for me but they do not stay.—Merle O. Mayer, Ohio.

Answer.—When a colony casts a swarm and this swarm clusters on the limb of a low growing tree, such as an apple tree, the hive from which the swarm comes should be set on a new stand, six or eight feet away from the old stand. Another hive intended for the swarm should be placed on the old stand. The swarm should then be shaken in front of the hive on the old stand. If a comb of brood from another hive is put into this hive, the bees will enter readily and will usually become established soon. If any supers, partially filled with honey, were on the hive that was set on a new stand, these supers should be placed on the hive containing the swarm. All of the old bees will leave the old hive placed on the new stand and will return to the hive on the parent stand. This will strengthen the swarm of bees. Normally, a young queen will emerge in the parent hive that has been set aside and in due time a young laying queen will appear.

Requeening without Dequeening

Question.—I want to know if there is any way to requeen a hive of bees if one is not expert enough to go into a hive and find the old queen and kill her. I think this is a foolish question, but you folks seem to know everything, so I am asking it.—M. L. Wright, N. C.

Answer.—The question is not so foolish as you may think. Requeening without dequeening can actually be accomplished. You should use a two-story brood chamber. You need also an extra cover and bottom board for each colony. At the beginning of the main honey flow in your locality, when colonies have reached their maximum strength, the upper brood chamber containing a considerable amount of brood and honey may be lifted onto the extra bottom board, a few feet from the parent hive. You should be sure to leave the queen in the parent hive on the old stand. This extra brood chamber that has been set aside should be supplied with a cover and if the weather is cool it pays to reduce the entrance somewhat. All of the old bees will return to the parent stand. In about three weeks the bees on the new stand should have a young laying queen, barring unfavorable conditions for rearing a queen. If there are queen cells in the upper chamber that is put on the new stand, all the better, as this will save some time in producing a new queen. At the close of the season, after the surplus honey has been removed from the parent hive, this hive with the young queen should be set back on the parent hive. In the majority of instances, the young queen in the hive above will be retained while the old queen below will be disposed of by the bees. It will thus be seen that requeening is actually accomplished without dequeening so far as the beekeeper is concerned. The bees have done the job.

Extracting Combs to be Used for Brood Rearing

Question.—In my extracting supers I place 8 full-depth frames. Now if I return or leave a super of these extra thick combs of honey on the hive to be used as a food chamber will the bees use these combs for brood rearing even though the cells are considerably deeper than combs taken from a super containing 10 frames? If they are not adaptable to brood rearing, what method should I use?—Geo. Arnold, Ohio.

Answer.— If you wish to have the combs in your extracting supers, which are added to strong colonies in the spring, used for brood rearing, simply space the frames ten to each 10-frame super after the bees have consumed the honey in the combs. Queens will lay in combs more readily if they are spaced ten to the super than they will if spaced eight to the super. The bees will shorten the cells of the combs, when necessary, down to approximately ½" in depth in order to use them for brood rearing.

Drone Comes from an Unfertilized Egg

Question.—Does a drone bee come from an unfertilized egg? How does that occur, or is that statement false?—Paul Wanchick, Ohio.

Answer.—It is a fact that a drone bee is developed from an unfertilized egg. This is a clear case of parthenogeneses or virgin birth. This phenomenon was discovered and propounded by Reverend John Dzierzon during the Nineteenth Century.

SIFTINGS—from various sources

By the Editors

Realizing that all worthwhile information on beekeeping is not found in one bee journal, we are sharing with our readers some notes gleaned from other bee journals, back issues of Gleanings, and bee books.

"Criticism is a disinterested endeavor to learn and propagate the best that is known and thought in the world".—Mathew Arnold.

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" 'I don't need none', said the lady of the house before the agent had opened his mouth. 'How do you know? I might be selling grammars.' " — March, 1944, Wisconsin Horticulture.

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J. E. Starkey, apiary inspector for Indiana, in his March, 1944, letter to beekeepers of his state, hands out some timely information in his advice on finding dead colonies in the spring: "Everyone should hold a **post mortem** on every dead hive, if for no other reason than to find out, if possible, why the colony died, so that future mistakes in winter preparations can be prevented."

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"The young general Zenophon, in ancient Greece, was—like some modern generals—leading his forces in retreat of the ten thousand from Asia. His men overcame the inhabitants of one section by the Black Sea through which they passed and took quarters in numerous villages. The soldiers were astonished at the number of bee hives. They indulged in abundant honey in quite disastrous results. A small amount made a man very drunk apparently; a large quantity made him almost insane, and some appeared to be almost dead. The effects wore off in a few days, but left the men weak and spent—fine prey for an enemy."—March, 1944, Canadian Bee Journal.

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"I am using platforms to set my full supers on when they come in from the yards. Each holds ten 10-frame supers. A floor truck with swivel casters is pushed under and as the handle is lowered into position to pull or push, it raises the entire load one inch from the floor. It can be moved with perfect ease anywhere."—Theo. Keinath, Vasser, Mich., in March, 1944, Beekeeper's Magazine.

"Gallup (A.B.J. 5: 33-4) reported that one winter a few years previous to 1869 the temperature was from 10 to 34 degrees below zero for thirty four days in Wisconsin during which time every swarm of bees perished with abundance of stores in their hives, that were attempted to be wintered on their summer stands in shallow hives, Langstroth, or box hives but those in hives 12-14 inches high wintered well on summer stands. He suggested that bees could expand upward more easily than sidewise to gather in more honey to the cluster space."—Taken from the article "Temperature Relations of Honeybees in Winter," by V. G. Milum, appearing in the 1928 Annual Report of Illinois State Beekeepers' Association.

[Note: It is necessary for successful wintering to have an abundance of good honey for each colony, properly placed, above the winter cluster. A deep food chamber, completely filled, in addition to some honey in the lower chamber, should meet food requirements, even during protracted cold spells in northern latitudes.—M. J. D.]

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"It is singular that, though honey was used for thousands of years for treatment of wounds and skin troubles our modern medical literature ignores the subject. Lately, it seems, honey is gradually regaining its age-old repute and lost popularity. Dr. Zaiss, of Heidelberg, considers honey in the treatment of wounds superior to all other ointments. He has treated several thousand cases of severe infections with honey and could not report a single failure. He dresses the wounds with strips of gauze dipped in honey and finds the wounds perfectly clean in 24 hours. The healing is remarkably rapid." From "Honey and Health", by Dr. Bodog F. Beck.

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G. M. Doolittle, author of "Scientific Queen Rearing" and a prolific writer during his time said that bees start gathering honey when sixteen days old and that eggs for honey gatherers should be laid 37 days before the honey flow begins.

(Continued on page 236)

Just News

The first spring meeting of the Middlesex County Beekeepers' Association will be at 2 P. M. on Saturday, May 27, at the wild-flower gardens of Mr. and Mrs. Charles M. Lamprey, on the Boston Post Road in Sudbury, Massachusetts, just beyond the Davis Turkey Farm. Bring your picnic supper to toast over the council fire. Mr. Lamprey has beautiful natural color films to show indoors after supper.—A. M. Southwick, Waban, Mass.

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The executive committee of the Lehigh Valley Beekeepers' Association met at the home of the president, Floyd Sandt, in Easton, Pa., to draw up a program for the present year. The first meeting will be held on May 6th at the apiary of Professor Everett in Allentown, Pa. The activities on this program include the inspection of colonies which were packed by different methods and, also, a demonstration of the installation of package bees in new hives. Plans are also being made for the regular June meeting at the home apiary of Floyd Sandt. Other officers of the association for this year are Arthur Masters of Mertztown, Pa., vice-president, and Mrs. Howard W. Dennis of Allentown, Pa., secretary and treasurer.—Robert H. M. Meier, President.

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The University of Minnesota, St. Paul, is offering a beekeeper's short course from May 11 to 13 in the Administration Building, Room 301. The registration fee is $3.00. Faculty members, M. C. Tanquary, A. G. Ruggles, M. H. Haydak, and T. L. Aamodt, are being ably assisted by Jas. I. Hambleton, Senior Apiculturist of U. S. A., Washington, D. C., and L. T. Floyd, Provincial Apiarist, Winnipeg, Manitoba. It is hoped that beekeepers and beginners in beekeeping living in the region of St. Paul, Minnesota, may take advantage of this unusual opportunity to learn more about beekeeping.

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The Palmetto State beekeepers had their regular spring meeting in Columbia, South Carolina, on March 15. Elected officers were W. W. Carter, Barnwell, President, W. K. Moore, Sandy Springs, Secretary. A very good crowd attended this meeting which shows that even though material is hard to get the beekeepers are planning and doing everything to make a better crop this year.—E. S. Prevost, Extension Bee Specialist.

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The regular monthly meeting of the **Bronx County Beekeepers' Association** will be held on Sunday, May 14, at the home and apiary of Mr. Sam Semich, 2242 Given Ave., Bronx, at 2:30 P. M. We expect to introduce some package bees at this time. This is a splendid time to bring your bee problems and questions relative to apiculture. Refreshments will be served.—Harry Newman, Sec.

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The Cuyahoga County Beekeepers' spring meeting will be held at Dr. Singleton's residence, Groveland Road, on the west side of Cleveland, 2:30 p. m., Sunday afternoon, May 7. Take Lorain Avenue car to Rocky River Drive, and walk about one third mile west on Lorain to Groveland Road. Dr. Singleton has induced the Metropolitan Park Board into the Experimental planting of forty acres to alsike clover for bee pasture. In addition, he is experimenting on his own test plots of figwort, wingstem, anise-hyssop, various sweet clovers, purple aster, lespedeza, etc. Like all of our meetings everyone is both invited and welcome.—Ed Johnson, Sec.

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"The Rearing of Queen Bees", bulletin No. 145, by Joseph Tinsley, F. R. E. S., of the West of Scotland Agricultural College, Glasgow, just off the press, is now available for 1 shilling.

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J. H. Beatty of Fargo, a charter member of the North Dakota Beekeepers' Association and active in matters pertaining to beekeeping, passed on suddenly at the age of 66.

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In the death of N. L. Stevens, on April 13, Venice Center, New York State lost a real pioneer in beekeeping, a trail blazer, an important figure in the affairs of the Empire State Association. As Mr. Stevens had been in ill health for some time,

(Continued on page 241)

Talks to Beekeepers

By M. J. Deyell

A Peek Into Some Colonies

On April 1, I visited an apiary out in the country, about 3½ miles from Medina. One has a peculiar feeling on approaching a yard, following an absence, because during these days we never know what may happen to bees and equipment. When I saw all of the hives right side up and unmolested, I heaved a sigh of relief.

Five or six years ago, E. R. Root and I visited this same apiary early in March, during a day when the bees were having a good flight. As we looked about, "E. R.", who, by the way, does not miss a thing, inquired why there were so many holes in some of the hives. I hadn't yet noticed them. Upon examining all of the 50 hives of bees in the yard I found that some vandal had shot bullet holes into 22 of the hives. It is a wonder some of the bullets didn't kill some queens but they didn't. Ventilation was really overdone in those hives but all of the colonies were alive and in good condition. If I had happened along while this shooting was going on, something would have happened to the vandal or to me.

I took time on April 1, to examine a number of colonies and found about what I expected to see, two or three combs in the middle of each upper brood chamber containing small patches of brood about the size of my hand which, by the way, isn't so small. Young bees were emerging and practically all of the colonies appeared to be in splendid condition.

I hefted all of the hives and a few seemed rather light. I am of the opinion that some colonies consume more stores than others during the winter. Perhaps some colonies are more nervous than others and will eat more honey. This is simply a guess on my part. Perhaps some of you beekeepers have noticed this.

What To Do With Weak Colonies

In a previous talk I gave my experience in handling weak colonies in Northern Michigan some 27 years ago, placing such small colonies on top of strong colonies with a screen between so that the small colonies on top would have the benefit of the heat generated by the strong colonies below.

I had a letter from a beekeeper in Pennsylvania. I have forgotten his name for the moment. He said I should have recommended placing the weak colony over a queen excluder. Some of the bees from below would go up into the hive above, containing the weak colony, and would help the bees in the weak colony to care for the brood and that this would eventually result in the weak colony becoming strong in bees. Later on, after the weak colony had built up to normal strength one of the hives could be placed on a stand nearby.

It occurs to me that if this will actually work, and I am told it will in most cases, after the weak colony has become strong it would pay to move the strong colony below to a new stand and leave the upper colony on the old stand. This upper colony when placed on the stand below would then receive the old bees from the strong colony that had been moved aside to a new location.

I intend to try this out thoroughly to see if it actually works. I would be afraid that in some cases the bees in the strong colony below might do away with the queen in the weak colony above.

It was Dr. Miller who said that it is perfectly possible to maintain two queens in hives stacked above a single bottom board, provided the two brood chambers are separated by at least one super. It might pay to place an empty super between the two queens and use two excluders.

After I have done some experi-

menting along this line I may refer to this matter again. At any rate, if very populous colonies can be used in the spring to strengthen weaker colonies, this would be one good use for these strong colonies.

Feeding Sugar Syrup

Last spring we had to feed some sugar syrup for the first time in many years due to a shortage of honey in the hives the previous fall. We were agreeably surprised at results obtained. A few quarts of thick sugar syrup will surely help to boost a moderate sized colony, provided, of course, there is pollen in the hive or coming from the fields. Sugar syrup alone will not produce a normal amount of brood. After all, there is nothing quite so convenient and satisfactory to feed bees in the spring as combs of sealed honey. If they contain some pollen all the better.

According to Hoyle, it should not be necessary to do any feeding in the spring if we see to it that every colony is supplied with an ample amount of food in the fall.

More About Proper Timing

In last month's Talks, I mentioned something about the time taken to produce a worker bee of the honey-gathering age, almost six weeks from the time the egg is laid until the bee has emerged and has become old enough to gather nectar. In most parts of the clover region in the North, the clover flow begins about the middle of June. This means then that heavy brood rearing should begin about May 1, in order to have an abundance of field bees available at the proper time.

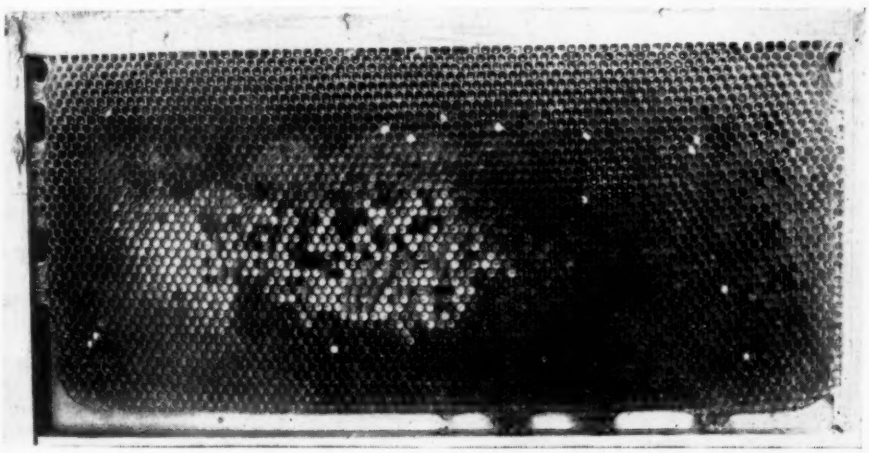
Then, too, we must keep in mind that there is a rather heavy death rate in a colony of bees. We are told that worker bees live only about six weeks during the height of the season. This would mean that these young bees that start to carry in honey when they are almost three weeks of age, live approximately three weeks after they become active fielders. It seems that their wings become frayed at the ends which renders them unable to continue longer as nectar gatherers, valuable as that work is. It seems likely that some of these worker bees are unable to return to the hives and, therefore, die somewhere in the fields.

It will thus be realized how important it is that each colony has a prolific queen, an ample amount of honey and pollen, adequate comb space, especially during May and early June, in order that the maximum amount of young bees may be produced to take the place of bees that are dying off daily, also to increase the number of bees in the field force. Anything that interrupts or interferes with normal brood rearing during this critical time will reduce the amount of surplus honey stored.

I hope we may all keep these things in mind, especially this season when honey and wax are needed so badly.

A Word About Manipulating Hives

Bees resent rough handling. Hives should be opened for examination



A brood comb containing young larvae, pollen, and fresh nectar. This is a common sight during the dandelion flow in the North.

during the warmest part of the day while a large percentage of bees are in the fields. It is inadvisable to open hives during cool weather, or during a dearth of nectar, even when the weather is warm. One can tell from the manner in which bees are flying whether or not nectar is coming in. Bees filled with nectar fly straight for the hive entrance and usually land heavily on the alighting board.

One needs a bee smoker, a bee veil, and a hive tool. The bee smoker should be well lighted and this should be done before putting on the veil, especially if it is a cotton veil which is easily burned by the flames from the top of the lighted smoker.

Never stand in front of the hive when bees are flying. If the hive has an outer cover, remove it, then insert the hive tool under one corner of the inner cover and blow some smoke through the small opening. Wait a few seconds, then remove the inner cover, and apply some more smoke over the tops of the frames but not too much.

Removing Frames For Examination

To remove the first frame, shove the hive tool down between the end-bars of the nearest frame and the hive wall and pry the frames over

Inserting the hive tool at one corner to blow some smoke on the bees.

to the opposite side. Separate the nearest frame from the adjacent one and remove the nearest one carefully. Do not make any quick moves. After examining the comb, stand it on end at the front corner of the hive so as not to obstruct the hive entrance. This is important because if the queen should be on this comb she could easily crawl into the entrance of the hive instead of being lost in the grass.

The next comb should be removed and examined, then placed back in the hive at the nearest side. The remaining combs should be removed, examined, and returned to the hive in like manner. Before placing the last frame removed, back into the hive, the frames in the hive should be pushed over all at once to the further side to make room for the first frame removed. This prevents killing bees. Any extra space not occupied at the near side of the hive should be divided evenly at each side before the hive is closed.

When operating two-story colonies, the upper brood chamber, after being examined, should be lifted off and placed on the inverted outer cover to prevent bees on the bottom of the frames from being killed. The bottom brood chamber may then be examined.

What To Do If a Swarm Comes Out

The old method of handling a swarm was to put it into a hive on a new stand. A much better method is to set the old hive on a new stand a few feet away, as soon as the swarm issues, giving the hive a quarter turn, thus facing its entrance away from its former position. Another hive, containing either frames with full sheets of foundation, wired, or drawn combs, is placed on the old stand to receive the swarm. Frequently, the swarm will cluster on the limb of a tree. Sometimes a swarm will cluster on the top of a tall tree which causes the owner to do some tree climbing. The limb, if it is not too large, may be cut off and the bees shaken directly in front of the hive on the parent stand.

After two days, the parent hive which was moved to the new location can be given a quarter turn to face the same direction as the hive containing the swarm.

After seven days, this parent hive may be moved to another location, at least fifteen feet away. The moving should be done in the middle of the day when a large percentage of the old bees are in the fields. These field bees will go into the hive containing the swarm and thus increase the size of the colony.

In due time the parent hive moved to a new location should have a young laying queen. If swarming occurs early in the season this parent colony may store some surplus, but, as a rule, it stores only enough for winter food.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 8 cts. per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

FANCY COMB and extracted clover honey, buckwheat, dark amber, goldenrod, in 60 lb. cans, 160 lb. barrels. Jas. H. Cartwright, 532 McClintock St., Pittsburgh, 14, Pa.

HONEY FOR SALE—50-60 lb. tin, California Eucalyptus Honey, $12.00 can; 50-60 lb. tin California Avacoda Honey, $12.00 can; 50-60 lb. tin, Amber Goldenrod, $10.80 can. Natural Foods Institute, 624 Prospect Ave., Cleveland, Ohio.

PRODUCERS and DEALERS alike are referred to page 239 of this number of Gleanings, regarding MICHIGAN'S f i n e Clover honey. The TOWNSEND SALES COMPANY Speaking.

WILL SELL ONE HUNDRED cans amber Buckwheat Honey 60 lb. cans. ALEXANDER COMPANY, 819 Reynolds Rd., Toledo, 7, Ohio.

BUCKWHEAT, AMBER, Case of 24 one-pound jars, $4.99. Five-pound jars, $1.00. In bulk 15 cents a pound. Konces, North Abington, Massachusetts.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

WE PAY CASH for extracted clover honey. Fairfield Honey Company, Millersport, Ohio.

WANTED—White and amber honey; any amount. D. F. Treap, 317 Keenan Ave., Cuyahoga Falls, Ohio.

HONEY AND BEESWAX—Highest prices paid. Mail samples. Advise quantity. BRYANT AND COOKINHAM, LOS ANGELES, CALIF.

CASH FOR YOUR HONEY light or dark. Regular trade, send sample. 60-pound cans furnished, if desired. W. R. Moomaw, Stone Creek, Ohio.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Honey Co., 12243 12th St., Detroit, Mich.

HONEY WANTED—All Grades and Varieties. Highest Cash Prices Paid. Mail Samples. State Quantity. HAMILTON & COMPANY, 1360 Produce Street, Los Angeles, Calif.

HONEY AND WAX WANTED. All grades. Any quantity. Send samples and your best cash price. We carry large stock of Tin and Glass honey containers. ALEXANDER COMPANY, 819 Reynolds Rd., TOLEDO, OHIO.

WANTED—We pay cash top price for clover honey in 60-lb. tins. Any quantity. Send samples and best prices. Cloverdale Apiaries, F. M. Babcock, Fredonia, N. Y.

WANTED white or light amber extracted honey from 1000 lbs. to a carload. Cash waiting. Send samples and best price to Honeymoon Products Co., 39 E. Henry St., River Rouge, Mich.

CLOVER HONEY WANTED—Large or small lots. Would like to establish permanent connections with several good producers. Ellsworth A. Meineke, R. 1, Arlington Heights, Ill.

WHEN YOUR CROP is ready let us hear from you. Ceiling prices paid for best grades honey, amber grades, one cent less. Wanted without having been heated in 60-pound cans. The cans you may have when empty, or exchange. BEE-KIST PRODUCTS CO., P. O. Box 1158, San Antonio, Texas.

FOR SALE

FOR SALE—300 section supers, with equipment, 50c each. N. B. Querin, Bellevue, Ohio.

MY FAVORITE BEE VEIL. Write for description and price. G. M. Ranum, Mount Horeb, Wisconsin.

QUEENBEE PAINTING outfits $1.00, colony records 10/15c, postpaid. Southwick Apiaries, Waban, Massachusetts.

YOUR WAX worked into high quality medium brood foundation for 16c a lb.; 100 lbs. $12.00. Fred Peterson, Alden, Iowa.

COMB FOUNDATION at money-saving prices. Wax worked at lowest rates. Comb and cappings rendered. Robinson's Wax Works, Mayville, N. Y.

MOLASSES, pure New Orleans, Alabama Sugar Cane, $1.00, in 5 lb. pail, 15c packing charges; 10-lb. pecans, $3.25 f. o. b. Louisville, Ky. Lose Bros., 206 E. Jefferson.

SAVE MONEY by letting us work your wax into wired regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices as we have no agents. Walter T. Kelley Co., Paducah, Kentucky.

HONEY WANTED
Carloads and less, all grades.
Will pay top prices.
Would contract now for crop.
Also Beeswax.
H. & S. HONEY & WAX COMPANY, Inc.
265 Greenwich Street, New York, N. Y.

HONEY WANTED
Carloads and less. All grades. Pay cash. Can furnish containers.
J. W. REITZ & BROS.,
Summerfield, Florida

WANTED--Extracted Honey All Varieties
Send samples and delivered prices to
JEWETT & SHERMAN COMPANY
Cleveland, Kansas City and Brooklyn

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

NORMAN'S
Package Bees and Queens
Now Ready
Quality - Service - Experience
Pure Italian Bees and Queens. Nothing but the best bright 3-Band Italians. Prompt service, full weight packages, young laying queens, safe arrival and satisfaction guaranteed.
State Health Certificate Furnished

Unt. Queens,	$1.00
Tested Queens,	2.00
2-lb. pkg with Queen,	4.00
3-lb. pkg. with Queen,	5.00

All pkgs. F. O. B. Express.
JOHN A. NORMAN
ROUTE 2 Ramer, Ala.

ITALIAN QUEENS
For Sale After June 1st. Sold Out Until Then. Price, 95c Satisfaction Guaranteed.
C. A. MASSEY
MILLRY, ALABAMA

MY BEEKEEPERS' equipment for sale.—Norman Bullpitt, Rainier. Wash.

One 2-frame Root extractor, also can ship a limited number of 2 lb. package bees with original queen at $5.00 each. H. A. Ross, Poseyville, Ind.

BEEKEEPER'S HOIST, $20.00; Good Milk Goat, FOB; Goat-Milk Caramels, Chocolates, Butterbrickle 75c lb. plus postage. Bee Turner, Corning, Iowa.

One Root 4-frame power extractor; one honey pump; one 3 horsepower gasoline engine, practically new. Angus Carruthers, R. F. D. 2, Syracuse, N. Y.

WRITE FOR CATALOG. Quality bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

TRITOX INSECTICIDE for victory gardens. Dependable 3-way kill for beetles, bugs, worms, plant lice. Dust or spray. A "Block Buster" for garden pests. 5 lb. bag postpaid $1.25. Tritox Chemical Company, Washington, Ind.

INSPECTED disease-free. Deep and shallow supers with 9 frames drawn comb each, $2.25 and $1.75 respectively; four uncapping knives, 50c each two-frame extractor $5.00, wax press, $3.00. F. O. B. Bach, Mich., Paul Umbach.

LEWIS-DADANT BEE SUPPLIES IN MINNEAPOLIS— Prompt shipment from complete stock. Send list of supplies for quotation. We carry carloads of honey containers in stock. Honey and beeswax accepted in trade or will pay cash. Honey Sales Company, 1806-08 N. Washington Ave., Minneapolis, Minn.

LEWIS-DADANT BEE SUPPLIES AT ST. PETER, MINN. Beeswax taken in trade or for cash. List items wanted in G. B. Lewis Co.'s catalog, giving number for prompt shipment. Save Swarms—try our Combined SWARM CONTROL and CONTROLABLE FEEDER, sample , $1.75 postpaid [10 for $16.00 K. D. not prepaid]. Nicollet County Nursery, St. Peter, Minn.

FOR SALE—Twenty acres, good neighborhood, small orange grove, started bearing, divided by U. S. 1. One thousand feet on Indian River. New cypress house 28 by 34, two-story. Brevard County nine miles north of Cocoa, Florida. 130 colonies guaranteed disease free Italian bees, equipment to increase to 200 colonies. Three hundred shallow supers, three good locations, and good queen rearing territory. Flow starting and goes with bees for quick sale. Ten thousand dollars. P. D. Shuping, Sharpes, Florida.

BEES AND QUEENS FOR SALE

BRIGHT ITALIAN QUEENS, $1.00 each. Ready in May. D. W. Howell, Shellman, Georgia.

Get your "CAUCASIAN" Queens from us. Booked to June 1. Crom's Caucasian Apiaries, P. O. Box 24, Manteca, Cal.

FOR SALE—25 colonies bees. Guaranteed no disease. Double hives. No delivery. Jay Brooks, Sherburne, N. Y.

HOLLOPETER hustling Italian queens ready May 20, $1.00 each. No package bees. White Pine Bee Farms, Rockton, Pa.

CAUCASIAN bees and queens. Booking for shipment after May 10th. 2-lb. pkg. $3.50; 3-lb. pkg., $4.50. Lewis & Tillery Bee Co., Greenville, Ala.

The Norma Roy Apiaries. Italian bees with untested queen. 3 pounds, with queen, $4.00. Live delivery and health certificate. Norma E. Roy & Son, Hessmer, La.

GOLDEN ITALIAN QUEENS, finest quality, 1 to 25, $1.25; 25 to 100, $1.15; 100 up, $1.05 each. Satisfaction guaranteed. Carolina Bee Farm, W. O. Curtis, Mgr., Graham, N. C.

PACKAGE BEES AND QUEENS. Booked up for early shipping. Now supplying old customers. New customers solicited in peace times. Crenshaw County Apiaries, Rutledge, Ala.

FOR SALE—70 colonies 10-frame double brood chambers hives, 500 extracting supers. Root's 45-frame extractor. Full equipment, factory made. Everything first class. J. E. Motter, West Alexandria, Ohio.

THREE-BANDED ITALIAN queens, finest quality, extra good workers, 1-25, $1.25 ea.; 25-100, $1.15; 100 up $1.05. Booking orders now for spring delivery. Alamance Bee Co., Geo. Elmo Curtis, Mgr., Graham, N. C.

My entire 10-frame bee equipment, 89 colonies, 290 deep bodies, 215 shallow supers with combs. Bees inspected at time of sale. Many articles not listed. If interested, send for list. Leland Farnsworth, Davidson, Mich.

HELP WANTED

WANTED—Strong man, preferably with some experience, to help with 23 apiaries. Ray C. Wilcox, Odessa, N. Y.

WANTED—Man to solicit beekeepers for the purpose of purchasing honey from producers, and assembling in cars for shipment to our factory. Steady position, good salary. State age, experience, full particulars. Box 1001, care of Gleanings in Bee Culture, Medina, Ohio.

WANTED

WANTED—Back geared honey pump. Frank Kearns, Austin, Minnesota.

WANTED—Paint spray machine. Either piston or diaphragm type. Crenshaw County Apiaries, Rutledge, Ala.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly, 7s. 6d., International Money Order. Apply Editor, Indian Bee Journal, Jeolikote, Dist. Nainital, U. P. India.

WESTERN CANADA BEEKEEPER, official organ of the Manitoba Beekeepers' Association, one year $1.00; in combination with one year's subscription to Gleanings in Bee Culture, $1.75. Wallingford Building, Winnipeg, Canada.

THE BEE WORLD—The leading Journal in Great Britian and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free, 12 cents stamps. Membership in the Club, including a subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $1.50. Hotel Cactus, San Angelo, Texas.

PETTIT'S PACKAGE BEES

All Sold for 44.

Regret that we cannot accept more orders for 1944 than we have already booked.

Will try to have even more bees in 1945.

Morley Pettit

Tifton, Georgia, U. S. A.

1944-Package Bees and Queens-1944

BRIGHT 3-BANDED ITALIAN

We can still handle a few more orders at the following price:

	1 to 24	25 or more
2-lb. Pkg. with queen	$4.00	$3.85
3-lb. Pkg. with queen	5.00	4.85
Untested queen.	1.10	1.00

NORMAN BROS. APIARIES

Ramer, Ala.

Can Not Accept More Orders

—FOR—

April and May Delivery at Present

To customers who booked their orders before this season's prices were agreed upon, will quote as follows:

Italians or Daughters of Queens bred for resistance

Package Bees with Queens

Lots of	2-lb.	3-lb.	4-lb.	5-lb	Queens
1 to 24	$3.50	$4.50	$5.50	$6.50	$1.10
25 to 99	3.35	4.35	5.35	6.35	1.05
100 up	3.20	4.20	5.20	6.20	1.00

A. E. SHAW

Shannon, Miss.

BUY U. S. WAR BONDS AND STAMPS

May Bees

We Can Accept Orders For Few Thousand More Packages FOR SHIPMENT DURING LAST HALF OF MAY

Prices with Queens:	2-lb.	3-lb.	4lb.
1 - 24 pkgs.	$3.65	$4.65	$5.65
Up to 99 "	3.50	4.50	5.50
Above 99 "	3.35	4.35	5.35

Loose-Queen Type, one dollar extra. Queenless packages, one dollar less.

THE PUETT COMPANY

Hahira, Ga.

WE ARE SORRY

No more bees until May 15. A few hundred queens in scattered shipments. We are booked heavily but if our health and luck holds we will get every package out on time or very nearly so. Thanks a lot.

Sullivan's Apiaries

Gilbertown, Ala.

BEEKEEPERS ITEM

Serving the beekeeping industry for a quarter century without bias or prejudice. "The forum for the thoughtful." One year $1.00; two years, $1.50; sample copy, 3c stamp.

With Gleanings it provides a combination that covers the beekeeping field.

Both magazines for one year, $1.75

BEEKEEPERS ITEM

P. O. Box 687 San Antonio, Texas

BUY U. S. WAR BONDS AND STAMPS

READ the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, P. O. Box 43, Cleveland, Johannesburg, S. Africa

MANY BEEKEEPERS have proven raising fox, mink nutria, muskrats, rabbits, highly profitable. Send dime for sample copy. Canada's oldest fur farming magazine telling how. fur Trade Journal of Canada, Box 31, Toronto 2, Ontario.

MAGAZINES—Business, vocational, Diversion. Current single copies only. Choose from 600 different publications, covering advertising, agriculture, art, aviation, beverages, confectionary, construction, dairying, dogs, educational finance, foods, health, hobbies, insurance, medical, music, petroleum, photography, plumbing, poultry, television, real estate, refrigeration, sports, watchmaking and more than 150 other fields. List with prices free. Commercial Engraving Publishing Company. 34M North Ritter, Indianapolis 1, Indiana.

PURE ITALIAN QUEENS

1-49, $1.25; 49-up, $1.10
All queens after June 15, $1.00 each
15% will book your order.

MIDDLE TENNESSEE APIARIES
JOE B. TATE & SON
1029 North 4th St., Nashville, Tenn.

Three Band Italian Package . . . Bees . . .

Booking orders from May 15th through June.

2-lb. Pkg. Bees with untested queens each, $3.40
3-lb. Pkg. Bees with untested queens each, $4.40
4-lb. Pkg. Bees with untested queens each, $5.40
5-lb. Pkg. Bees with untested queens each, $6.40
Tested Queens $2.00

Payable in U. S. Funds

We are booked up for this season on extra Untested Queens. If bees are wanted without queens, deduct $1.00 from each package.

JACKSON APIARIES

Funston, Ga. U. S. A..

BUY U. S. WAR BONDS AND STAMPS

KELLEY—"The Bee Man"

Glass - Tin

16 oz. Economy Jars, carton 24 each,	$0.70
32 oz. Economy Jars, carton 12 each,	.42
.5 lb. Economy Jars, 12 cartons	5.00
24 cartons	9.95
60 lb. Square tin cans, carton of 16	5.40

Quick shipment from large Paducah stock

New Price List

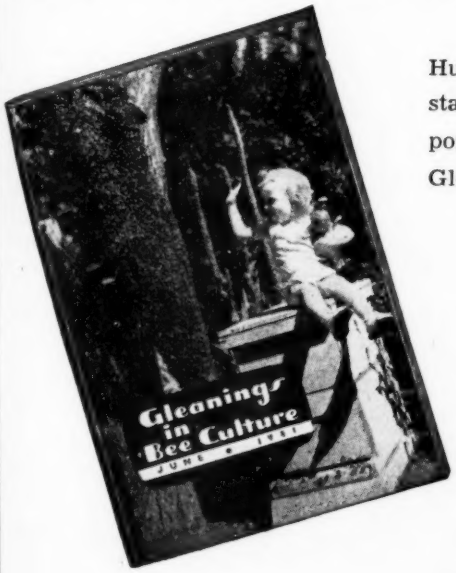
Write for our 1944 price list. We now have many items that have been short for some time. Prices remain steady except on bees. All stocks are low, so order early.

THE WALTER T. KELLEY CO.

Paducah, Kentucky

Buy U. S. War Bonds and Stamps

ONE YEAR'S SUBSCRIPTION FREE



Hundreds of new beekeepers have started this year. Their success is important. **"Talks to Beekeepers"** in Gleanings in Bee Culture will help them.

Mail Us:
3 One-year Subscriptions
or
2 Two-year Subscriptions
(At the Regular Rates)
And we will enter your subscription FREE for one year.

Mail to Circulation Manager
GLEANINGS IN BEE CULTURE
Medina, Ohio

MAY

Bees are in good shape and are building up nicely. We can handle a few orders the first week in April if the weather continues good, especially queenless packages. We are booked solid from April 10th on.

- Prices -

Lots of:	Qns.	2 Lb.	3 Lb.	4 Lb.	5 Lb.
1 - 24	$1.10	$3.50	$4.50	$5.50	$6.50
25-99	1.05	3.35	4.35	5.35	6.35
100-499	1.00	3.20	4.20	5.20	6.20

Queenless Packages - Deduct Price of Queen

• • •

The Stover Apiaries

Mayhew, Miss.

Sold Out

• • •

Regret that no additional orders for package bees or queens can be accepted until further notice. Thanks.

• • •

York Bee Company

JESUP, GEORGIA. U. S. A.

(The Universal Apiaries)

QUEENS

After May 15 we have some carefully bred and selected queens to offer:

Prices to June 1		Prices after June 1	
1-24	$1.10	1-24	$1.00
25-99	1.05	25-99	.90
100-up	1.00	100-up	.80

EUGENE D. (GENE) CUTTS
Citronelle, Alabama

To Our Customers

We are booked up on package bees until June 1st. To those who have ordered package bees with queen, will quote.

QUAN.	QUEENS	PKG. 2-lb	PKG. 3-lb.	PKG. 4-lb.
1 to 49	$1.10	$3.45	$4.45	$5.45
50 and up	1.00	3.25	4.25	5.25

For queenless packages deduct price of queen. Young queen, safe arrival.

HOMAN BROS.
Shannon, Miss., R. R. 2

3-BANDED ITALIAN BEES

2-lb. pkg. with queen	$3.50
3-lb. pkg. with queen	4.50
Queens	1.10

No discount

Filled out for the month of May, but I am booking orders for June.

J. P. Corona, Box 124, Kenner, La.

CARNIOLANS
CAUCASIANS

No more package bees this spring. Package business will take all queens reared during May. Untested queens, both races, June 1st on, $1.00 each; by Air Mail 7c extra.

Albert G. Hann, Glen Gardner, N. J.

CHOICE ITALIAN QUEENS and package bees.

We have been furnishing queens and package bees through other shippers. Let us furnish yours direct. Write for prices.

CLIFTON APIARIES
P. O. Box 684, Oroville, Calif.

THE BEEKEEPERS MAGAZINE

$1.00 a Year

Is one of the leading national beekeeping publications. Single copy current issue 10c. Combined with Gleanings in Bee Culture it makes a splendid combination Both magazines, one year, $1.75.

THE BEEKEEPERS MAGAZINE
3110 Piper Rd., Rt. 5, Lansing, Mich.

Sunny South Apiaries

Several thousand 3-lb. packages of bees with young Italian queens still available in May. May we supply your needs.

3-lbs. with queen,	$5.00
2-lbs. with queen,	4.00
Extra queens,	1.25

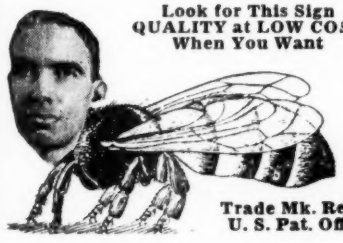
BUNKIE, LOUISIANA I. CLARK, Prop.

the Hubbard APIARIES

WRITE FOR FREE CATALOG

Quality Bee Supplies Factory Prices
Prompt Shipment from Stock
Satisfaction Guaranteed

THE HUBBARD APIARIES
Manufacturers of Bee Supplies
ONSTED, MICHIGAN



KELLEY—"The Bee Man"

ITALIAN QUEENS

Start Shipping **March 25th**

1 to 24,	$1.10 ea.
25 to 99,	1.05 ea.
100 and over,	1.00 ea.

MAIL YOUR ORDER NOW

THE WALTER T. KELLEY CO.
Paducah, Kentucky

Italian Bees and Queens

Booking orders for delivery after May 10th.

OUR BEES GET HONEY

QUEENS	2-LB. PKGS.	3-LB. PKGS.
1-24 $1.10	$3.50	$4.50
25-99 1.05	3.35	4.35
100-up 1.00	3.20	4.20

Baker & Running Apiaries

Sumter County

SUMTERVILLE, ALABAMA

TOO LATE TO CLASSIFY

FOR SALE—550 colonies of bees, part eights and part tens, need some repair, $4500. All honey in 1944 intake. Bees are guaranteed free from disease. W. T. Arnold, George West, Texas.

FOR SALE—153 cases of white and amber honey in 2 lb. 7 oz. jars. Charles C. Stewart, Port Hope, Mich.

FOR SALE—600 colonies, complete equipment ,and one of Michigan's finest extracting and packing plants in the heart of Michigan's clover land at St. John. M. J. Beck, Box 7, Lansing, Mich.

SIFTINGS

(Continued from page 224)

Adam Grimm, Jefferson, Wisconsin, writing to A. I. Root under date of October 18, 1873, in the November 1, 1873 issue of Gleanings in Bee Culture says: "Beekeeping has added over $22,000.00 during the last five years, to my earthly possessions. I could not live a contented life without keeping a large number of colonies of bees and therefore will keep them until I really get tired of them."

• • •

"The most important reason for keeping wax clear of propolis is that not only the colour, but also the much more important physical properties of the wax suffer seriously from the presence of any excess of propolis."—Bee World, Jan. 1944.

COMB HONEY that looks and tastes right. Geo. Rehman, North Baltimore, O.

SIX DOZEN wire metal Modified Dadant queen excluders, disease free, used once, clean, $6.00 per dozen. Sam Lotter, Brown City, Mich.

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NOSEMA—BEEKEEPERS ENEMY NO. 1

(Continued from page 199)

lieves will assist in the control of this number one threat to beekeeping. Every beekeeper's association should bring pressure to bear on Congress for appropriations sufficient to carry on the necessary research in the fight to control the disease. Likewise funds should be provided in the various important beekeeping states so that supplemental or preliminary work can be carried on within these states.

With the present very favorable prospect for at least an average crop of honey in many areas, Nosema may again either seriously reduce or be the sole cause of complete crop failure in many areas. Looking back over the past ten years in the writer's experience, it is safe to say that somewhere this year a crop will be lost because of Nosema.

Delaware, Ohio.

MOUNTAIN GRAY BEES

No more orders for bees or queens accepted until further notice appears in Gleanings. Thanks to all our friends and customers.

BOLLING BEE CO.
Bolling, Ala.

BEES - ITALIANS - QUEENS

We can book a few more small orders at the following prices:

2-lbs. bees with queen	$4.00 f.o.b.
3-lbs. bees with queen	5.00 f.o.b.
Queens	$1.25 ppd.

W. E. Plant
Rt 2, Hattiesburg, Miss.

1944 PRICES FOR ITALIANS PKGS. BEES AND QUEENS

LOTS OF QUEENS	2-LB.	3-LB.	4-LB.
1 - 24	$1.10	$3.50	$4.50	$5.50
25 - 99	1.05	3.35	4.35	5.35
100 up	1.00	3.20	4.20	5.20

FARRIS HOMAN
Shannon, Miss.

St. Romain's "Honey Girl" Italians

3-lbs. bees with queen $5.00 per pkg.
Queens alone, (to June 10) $1.25 each; after $1.00 each.
We have more package bees to sell than we have booked in advance. We didn't want to disappoint any one. Orders will be filled in rotation as received.

ST. ROMAINS "HONEY GIRL" APIARIES
MOREAUVILLE, LOUISIANA

2 Years $1.50

American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

—SAMPLE COPY FREE

$1.00 a year, 2 years $1.50 in U. S. and Canada. Combined with Gleanings in Bee Culture, both magazines. **ONE YEAR, $1.75.** This offer good only in the United States.

Address—

American Bee Journal, Hamilton, Ill.

Wanted White Extracted Honey
Send Sample and best price Frt. Paid to Cincinnati, O.
THE FRED. W. MUTH CO.

Thanks to All

who have patronized us this season as well as in the past. We have done our best to maintain our our high Quality and Service in face of a capacity business and shortages of materials and labor.

We also have done our best to instill the home loving instinct in our bees so if they wander away from home do not blame us, as they were all reluctant to leave their parent colony and had to be forcibly placed in the package for shipment. Some even found ways to escape. Seriously, though, we hope you will pardon any mistakes we have made as they are bound to occur in the haste incident to shipping bees this year.

Rossman & Long
Box 133 **Moultrie, Ga.**

Package Bees and Queens

Leather Colored Italians Bred for Production

Prices of Package Bees with Queens			
Lots of	2-lb.	3-lb.	Ex. Queens
1 to 24	$4.00	$5.00	$1.25
25 to 99	3.85	4.80	1.10
100 or more	3.75	4.70	1.10

Terms: 25% deposit to book order, balance ten days before shipping date. We replace any bees that die in transit if it is our fault, if it is the carriers fault, file claim with them. We are now shipping.

The Island Apiary
Collier City, Fla.

SHORT CUTS IN APIARY MANAGEMENT

(Continued from page 187)

in a yard constitute a convenient unit of colonies to handle economically. There should be sufficient space through the middle of the yard for a truck to pass in distributing and picking up supers. This saves a lot of time and labor.

We have found it an advantage also to place the hives at least six or more feet apart, to facilitate easy manipulation of colonies and to reduce the drifting of bees from one hive to another, which is likely to occur when hives are close together.

If each one of us will strive to work out short cuts that will save effort and time, much unnecessary labor can be avoided and, furthermore, a wider margin of profit will be realized. We must use short cuts, especially during these crucial days.

Carniolan Queens
$1.25 each, postpaid.
Ephardt's Honey Farms
PLAUCHEVILLE, LA.

McVay AT Jackson
SOLICITS YOUR ORDER FOR
QUEENS OF QUALITY
AND PACKAGE BEES FOR MAY
J. F. McVay, Jackson, Ala.

NORMAN'S
Bright Italian Bees and Queens

For 23 years we have been breeding the Italian stock. We guarantee pure mating of Queens, safe arrival on Queens and package bees. Health certificate furnished.

All package bees F. O. B. Express

2-lb. package bees with Queen	$4.00
3-lb. package bees with Queen	5.00
4-lb. package bees with Queen	6.25
Young laying Queens (each)	1.00

NORMAN BEE CO.
Ramer, Ala.

About MICHIGAN'S f i n e Clover Honey. About MICHIGAN'S Up-to-the-Minute Honey Producers.

For a decade the writer has been almost alone in advertising MICHIGAN Clover honey. F i n e Clover Honey. In the first place we have something to advertise. That is important. Old c l e a n Clover fields, free from the many weeds grown in some states, that interfere with the production of c l e a n pure Clover honey. Mostly from Alsike and Sweet Clover, with a sprinkling of Alfalfa. All tops in honey. On top of this we have an array of top-notch honey producers in Michigan. If it were not for the fact that we have these up-to-the-minute producers in Michigan, this result could not have been accomplished. Together you are offered the very best quality honey that skill and experience can produce. Why go elsewhere to buy your supply of honey, when the opportunity is open to you to buy the best, at no additional price. To both the producer and the buyer: When you have honey to sell, or if you are a packer and are in need of some fine honey, write me. No available honey until the new crop is harvested in July

TOWNSEND SALES COMPANY

E. D. Townsend Since 1876 Northstar, Michigan

Thanks to Our Customers

We will be unable to accept any more orders for package bees and queens, through the remainder of this season. We wish to thank all of our customers for their kind co-operation this season.

ALBERT KOEHNEN, Live Oak, Calif.

PACKAGE BEES....QUEENS

During May we will accept orders according to available supply of bees. Write us for further information concerning dates.

	QUEENS	2-lb. pkgs.	3-lb. pkgs.
1-24	$1.10	$3.50	$4.50
25-99	1.05	3.35	4.35
100-up	1.00	3.20	4.20

BESSONET BEE COMPANY Donaldsonville, La.

BETTER-BRED QUEENS---Three-Banded Italians

We can supply a limited number of packages at the following prices:

	2-lb.	3-lb.	4-lb.	5-lb.
Prices with queens,	$4.00	$5.00	$6.00	$7.00

Queens, $1.25 each.

Order direct from this ad. If we cannot fill your order we will return your money at once.

CALVERT APIARIES, Calvert, Alabama

QUALITY PACKAGE BEES AND QUEENS

We have discontinued booking orders until further notice in the bee journals.

Prices for 1944:

	2 lb. with Queen	3 lb. with Queen	Single Queens
1 to 10	$3.45	$4.45	$1.05
11 to 24	3.35	4.35	1.00
25 to 100	3.30	4.30	.95
100 and up	3.20	4.20	.90

GARON BEE CO., DONALDSONVILLE, LA.

Telephone 8614 Telegrams, Western Union

Three-Banded Italian Bees and Queens

Send us your package bee orders for shipment after May 12th. and queen orders for shipment after June 1st.

Favorable conditions have enabled us to ship more bees than anticipated earlier in the season, and we can therefore accept some additional orders.

Prices to June 1st.

Quantity	Queens	2-lb. & qu.	3-lb. & qu.	4-lb. & qu.	5-lb. & qu.
1-24	$1.10	$3.50	$4.50	$5.50	$6.50
25-99	1.05	3.35	4.35	5.35	6.35

Prices after June 1st.

1-24	$1.00	$3.30	$4.30	$5.30	$6.30
25-99	.90	3.20	4.20	5.20	6.20

For queenless package, subtract price of queen.

HOLDER APIARIES

65 St. Francis St. P. O. Box 1101
MOBILE, ALABAMA

DIXIELAND'S

Leather-colored Italians, package bees and queens for May and June delivery. Send your order in now

	Queens	2-lb. pkg.	3-lb. pkg.	4-lb. pkg.
1-24	$1.10	$3.50	$4.50	$5.50
25-99	1.05	3.35	4.35	5.35
100-500	1.00	3.20	4.20	5.20

PRICES AFTER JUNE 1st.

	Queens	2-lb. pkg.	3-lb. pkg.	4-lb. pkg.
1-24	$1.00	$3.30	$4.30	$5.30
25-99	.90	3.20	4.20	5.20
100-500	.80	3.00	4.00	5.00

Dixieland Apiaries - Greenville, Ala.

QUEENS! QUEENS! QUEENS.

We are booked for April and May. We are now accepting orders for June. 10% books your order. Prompt reply—Queens clipped.

1-25 .80 cents 25-up .70 cents

Rt. 2, Box 9 SUNKIST BEE CO. Houma, La.

QUEENS

Italians Daughters of Queens Bred for Resistance Caucasians
Booked up to June 1st. on package bees. Can handle a few extra queen orders, for May and June.
See former ads for prices or send for CIRCULAR. Over 25 years a shipper.

BLUE BONNET APIARIES, Route 1, Box 70, Mercedes, Texas

This photo shows portion of our queen bee yard containing over 6000 nuclei.

5,000 three pound package bees with queens available in May.

Packages in Proportion	May we serve you
	3 lb. with qns. $5.00
	2 lb. with qns. 4.00
	Extra qns. 1.25

By Express

OVERBEY APIARIES, BUNKIE, LA.,

HONEY AND GELATINE Are GOOD MIXERS

(Continued on page 203)

Honey Orange Ice

One envelope Knox Sparkling Gelatine, ¼ cup cold water, 1 cup hot water, ¾ cup orange juice, 2 tablespoons lemon juice, grated rind ¼ orange, and 3 tablespoons honey.

Combine hot water, honey, and grated rind of orange. Soften the gelatine in the cold water, add to hot mixture and stir until dissolved. Then add orange and lemon juice, strain, cool and freeze. This mixture can be poured in the ice trays of a mechanical refrigerator to freeze. Stir a few times while freezing.

Jellied Honey Custard

One envelope Knox Sparkling Gelatine, ¼ cup cold water, ½ cup hot milk, 3 tablespoons honey, 3 eggs, ¼ teaspoon salt, 1 teaspoon vanilla, and 1 cup cold milk.

Soften gelatine in cold water. Add the hot milk and stir until the gelatine is dissolved. Add slightly beaten eggs, honey, and salt. Stir well. Add cold milk and vanilla. Pour into a mold that has been rinsed in cold water and chill. When firm, unmold. Serve with

Honey Chocolate Sauce

One teaspoon Knox Sparkling Gelatine, 2 tablespoons cold water, ¾ cup honey, ⅓ cup cocoa, and ⅓ cup water, 1 teaspoon vanilla, and ¼ teaspoon salt.

Combine honey, cocoa, and ⅓ cup water; stir until well mixed, then let simmer for 5 minutes. Remove from fire. Soften gelatine in the 2 tablespoons of cold water. Add to hot honey syrup and stir until gelatine is dissolved. Add vanilla and salt. Let cool. Serve over ice cream and puddings. Chopped nuts may be sprinkled over top. This sauce does not grain. If not to be used immediately keep in a covered jar.

Aurora, Nebraska.

JUST NEWS

(Continued from page 225)

his passing was a relief from pain and suffering. N. L. Stevens was one of the extensive beekeepers, not only of New York State but of the United States. He was aggressive and quick to adopt modern methods. His business judgment was sought in ever widening circles. He was born in 1866, and having subscribed for Gleanings when he was 18 years old, he was one of our oldest readers, having taken the magazine for sixty years. During all this time, he was fair in all his dealings and he remained to the very last an honest Christian gentleman.

• • •

Ferdinand Schimmoeller, of Fort Jennings, Ohio, a member of the Tri-County Beekeepers' Association and a life long beekeeper, died March 31, at the age of 83.

o o o

PASSING of E. B. ROOD, BRADENTON, FLORIDA, at the AGE of 83.

Twenty-five years ago, A. I. Root, then spending his winter in Florida, used to tell us much about his neighbor, E. B. Rood, a beekeeper having beeyards scattered over central Florida. For ten years or more he was in the honey business, having sold honey throughout the state. He later engaged in farming, making a specialty of strawberries. For many years he was known as the Strawberry King of central Florida. He organized the Florida Grapefruit Canning Company and was the pioneer who started the business of canning grapefruit juice, a product now sold throughout the country. He was a Director of the Manatee County Growers' Association. He helped organize and promote the building of the Hotel Dixie Grande, Bradenton, helped organize the Manatee River Bank and Trust Company, and served on its Board of Directors and Finance Committee for a number of years.

Root QUALITY
BEE SUPPLIES

For Michigan

NOW is the time to anticipate your needs for 1944. Send us a list of your wants and we will quote best CASH PRICE.

HAVE A BIG STOCK OF FRAMES, FRAME WIRE, FOUNDATION, GLASS CONTAINERS AND 60 LB. CANS.

SECTION HONEY FOR 1944
"It's a snap" to prepare the Supers with the ROOT'S SPLIT SECTION DEVICE (price 55c), using regular sections split 3-sides and thin super for split sections.

M. J. Beck Co.

Successor to M. H. Hunt & Son

510 N. Cedar St., Box 7

LANSING 1, MICH.

Beeswax Wanted
Cash or Trade

41½ cents cash or 43½ cents trade

Liberty Honey Jars

Cs. 24 6-oz., 60c; cs. 24 8-oz., 65c
Cs. 24 1-lb., 85c; cs. 12 2-lb., 55c
Cs. 12 3-lb., 65c; cs. 6 5 lb., 45c
Less 5% for orders of 25 cases or over, and 1% for cash.

SOUTHWESTERN BEEKEEPERS!
We carry Lewis-Dadant supplies at catalog prices. Write for complete price list.
Quality supplies, service, courtesy.

The Coffey Apiaries

Whitsett, Texas

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"Australasian Beekeeper"
Subscription 5 shillings per year. Start any time. Inquire for International Money Order for 5 shillings (Australian) at your Post Office.
Write now to the Editor. P. O. Box 20.
West Maitland New South Wales
Australia

BUY U. S. WAR BONDS AND STAMPS

Yes, Hen's Teeth, We Have Them

They give your DOLLARS more cents

4-fr. Extractors 9⅝" baskets	each	$14.75
10-fr. Wood Bound, Wire Queen Excluders, 5 or more	each	.80
10-fr. Telescope Cover Hives (Composition covering) with inner covers, frames, etc. Lots of 5		14.75
10-fr. Hive Bodies and Frames, lots of 5		6.65
Hoffman Brood Frames, per 100		5.05
25 lb. Hercules Wired Brood 8x16¾ or 8½x16¾		18.50
25-lb. Hercules Plain Brood 8x16¾ or 8½x16¾		17.50
25-lb. Thin Surplus Foundation 3⅞x16		19.75
Bee Escapes	each	.12
2" Hive Staples, per lb.		.30

(prices subject to change)

SEND FOR COMPLETE PRICE LIST FOR 1944

THE FRED W. MUTH COMPANY

Pearl & Walnut Sts. Cincinnati, 2, Ohio

LET'S ALL AVOID CERTAIN RUIN!

FARSIGHTED Beekeepers, working with reputable Honey Packers, have built a strong, national market for quality honey.

Women have come to know that a famous honey brand name means a pledge of excellence they can trust.

But today, this condition is menaced. This big quality market . . . the Beekeeper's best assurance of good prices and good sales in coming years . . . is under attack.

Yes, whether or not you realize it, all future honey sales are threatened . . . are certain to suffer seriously when the present boom demand is over . . . unless you do something about it now.

Only With Good Honey Can Good Markets Be Maintained

Here's what is happening. A swarm of transient buyers are descending, like seven-year locusts, upon the Beekeeper and his crop.

Their one idea seems to be to get all the honey they can lay their hands upon, sell it, pocket the profits, and let honey quality and the Beekeeper's future go hang.

By dumping inferior honey upon the market, they are destroying the public's confidence in all honey . . . a confidence which the Beekeeper and reputable Honey Packer must have if wide and stable honey markets are to be maintained.

Help Some Reputable Packer Protect Your Own Future

This season, shouldn't you help protect your own future by selling as much honey as you can spare to some reputable, long-established Packer.

Such a Packer keeps faith with the public and with you. He takes your quality honey and guards this quality jealously through every step of processing . . . right to the consumer's table.

Thus he helps to hold today's quality market . . . and to expand this market for both of you through coming years.

Think this over, Mr. Beekeeper. Selling to your favorite among the undersigned Honey Packers will assure you now of top OPA Ceiling Prices and will cement for you a relationship that will pay out in long-run dividends.

The Following Established Packers Invite Your Valued Cooperation:

SIOUX HONEY ASSOCIATION
Sioux City, Iowa

SUPERIOR HONEY COMPANY
Los Angeles, Calif.

C. W. AEPPLER COMPANY
Oconomowoc, Wis.

T. W. BURLESON & SON
Waxahachie, Texas

B-Z-B HONEY COMPANY
Alhambra, Calif.

H. J. HEINZ CO.
Pittsburgh, Pa.

THE JOHN G. PATON COMPANY, INC.
New York City

The Monthly Honey Market

INFORMATION FROM PRODUCING AREAS

(Prices generally refer to sales at wholesale by beekeepers f. o. b. shipping points except as otherwise noted. Dates shown for each section indicate approximate period covered.)

SOUTHWESTERN AREA: (Period March 24 to April 9)

East and Southeast Texas. This period was very wet and unseasonably cold. Bees were unable to work and many colonies ran out of stores, necessitating feeding. A few colonies starved, while others lost a large portion of their brood. General colony condition is much less favorable than two weeks previously. Some packages and queens are now being forwarded and shipments should become fairly heavy around the middle of April. Some sections in southeast Texas had exceedingly high water with local floods which damaged a number of bee yards considerably. Several apiaries were entirely wiped out.

South Texas. Sales f. o. b. shipping point, per lb. extracted—Cotton, in case to ton lots, 12c.

Lower Rio Grande Valley. Extracting is progressing in a limited way where beekeepers have the time and help available. The orange honey is of exceptionally heavy body and very light in color. Since the orange flow stopped suddenly about two weeks ago, robbing by bees has been serious. No honey flow is in sight for the near future. It is again dry and rain is badly needed. Demand for package bees continues heavy, with many orders being turned down daily. A few up-State honey buyers have been active in the Valley, but little honey has moved in a wholesale way as producers are inclined to pack for the local trade.

Southwest Texas. Severe frost and some freezing weather hit much of this area during the last of March. In many places mesquite was scorched and huajillo and catsclaw were damaged so that bloom may be less than 50 percent of normal. There is now a light honey flow, but present prospects point to a light, early spring crop. Some colonies which had heavy brood or were building up rapidly have had to be fed. Moisture conditions are generally favorable.

New Mexico. In the Mesilla Valley a light snow fall on March 19 was followed by several days of very cold weather, which destroyed a large portion of the apricot bloom. Weather since that time has been favorable and at the end of the period pears and apples were in full bloom providing bees with a good build up.

Oklahoma. Snow and a hard freeze during the last week of March destroyed many honey plants and slowed down bee activity. Generally colonies are in good condition, but unless early pollen and nectar are soon available considerable feeding will be necessary.

Arkansas. This period was cold and rainy with a number of nights of light frosts. This has caused some swarming from strong colonies. Willow is in full bloom and holly looks favorable for a heavy flow. However, weather has prevented bees from working these sources much.

PLAINS AREA: (Period March 24-April 9)

Red River Valley of Minnesota and North Dakota. Temperatures have been somewhat milder during the latttr part of this period but there is still some snow on the ground, especially where deeply drifted, and roads are in poor condition so that it has been difficult to unpack cellar-wintered bees. Cellar bees are becoming very restless. Sweetclover acreage will be considerably reduced, but many sweetclover growers are requesting that bees be placed near their fields which may make for a high utilization of any available flows. Many beekeepers in this area, both large and small, are planning on using package bees to strengthen colonies or expand operations. Some difficulty has been experienced in placing orders for packages.

Iowa and Nebraska. The weather continues cool with some rain. Spring is at least two weeks late. In some sections elm and maple are just beginning to bloom, while in others no bloom is yet apparent. Colony losses so far have been normal or below, practically all as a result of starvation. There was apparently no winter loss as a result of severe cold. Sweetclover acreage will be much lighter than normal. However, considerable Hubam clover will be planted this spring in some areas. Sales f. o. b. shipping point—Nebraska, Alfalfa-Sweetclover in single 60s 15c per lb.

Kansas. Practically this entire period was cold and wet, with a blizzard in northern Kansas on March 28 which was followed by torrential rains around April 8. Moisture conditions are favorable. In the southern part of the State some maple and elm are blooming, but in the northern portion nothing is available. In the southern part of the State considerable fruit bloom was killed or damaged by frost at the end of March. Sweetclover plants are in excellent condition, although the acreage is somewhat short. White clover is fairly plentiful. Broodrearing has been delayed by the cool weather but colonies are in generally good condition with relatively light losses to date.

Missouri. Weather during this period was unfavorable for bees and also early blooming fruit. Some peach bloom was killed or severely injured. Bees have consumed large quantities of honey and considerable brood has been killed by freezing weather. On the other hand, most colonies have wintered well and except for the necessity of feeding, most colonies are in very good condition. Dandelions are blooming over most of the State, but cool, rainy weather has prevented bees from gathering much pollen.

U. S. GOVERNMENT REPORT
Information from Producing Areas
SUMMARY, April 15, 1944

Many areas which were favored with a very mild winter and suffered from a winter drought are now suffering from an excessively cool and wet early spring. With the exception of some of the Western group of States and the Northern Plains and the North Central areas much of the country has had excessive rainfall. This has been especially true in the Southeast, with the exception of Florida. Frosts and freezes through much of the middle south caused some injury to peaches and other early deciduous fruit, and reduced the flow from nearly all late March and early April nectar sources. The citrus flows in Florida and the Lower Rio Grande Valley of Texas have ended and were somewhat lighter than normal. The Florida citrus honey was somewhat darker than normal, but the crop

in the Lower Rio Grande Valley was of unusually heavy body and very light in color. Oranges in Southern California and Arizona are just beginning to bloom. The main orange flow in the west will be at least two weeks later than normal, but promises to be fairly heavy except in portions of Central California where some bloom was killed by frosts.

Condition of bees for the country as a whole is better than normal and much better than last year. However, because of the mild winter over much of the north considerable heavy feeding will be required. Shipments of package bees from the South are becoming heavy. Orders for packages and queens continue heavy with most producers turning down many orders daily. Unseasonably cool weather through the Ohio Valley and some of the mid-western States has made introduction of new packages difficult. Labor shortages continue to hamper the operations of many package producers and will likely be a big factor in determining the amount of expansion which will take place among commercial beekeepers this year. Interest in beekeeping is still keen among amateurs and small side-line beekeepers. Some apiaries are changing hands.

Honey supplies in beekeepers' hands are becoming increasingly light. On the other hand, many packers and wholesalers apparently have sufficient honey on hand to carry them through until new crop honey is available. Retail demand for honey continues rather light and many industrial users of honey are now using lower priced substitutes. The f. o. b. price on honey in practically all sections continues at the ceiling of 12c per lb. f. o. b., regardless of flavor or color. Offerings of beeswax are somewhat lighter. However, demand continues good at the ceiling of 41½c per lb. cash, and 43½c per lb. in trade f. o. b. to beekeepers.

Monthly Report of Honey Producers

Early in April we sent the following questions to honey producers: 1. What is your estimate, revised to date, of the amount of last year's honey crop not yet sold in your locality? Give answer in per cent. 2. What price has honey been sold or contracted for, if any in large lots (carload or less) in your locality during the past month for (a) extracted honey per pound? (b) comb honey fancy and No.1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey; fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the condition of the honey plants at this time in your locality, as compared with the average? Give answer in per cent. 7. What is the present condition of the colonies, as compared with normal, considering the number and age of bees and the supply of stores? Give answer in per cent. 8. What is the per cent of winter and spring loss to date (if any) in your locality? The answers returned are tabulated as follows:

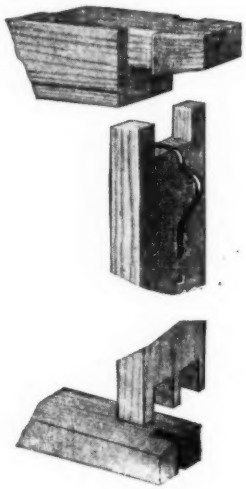
Rec. Date Apr.	State	Name	Hold over 1 1943	Grocers To Ex. 3	Grocers To Comb 3	Consumers To Ex. 4	Consumers To Comb 4	move-ment 5	honey plants 6 Cond.	colo-nies 7 Cond.	cent 8 Per-loss
11	S-Ala.	(J. C. Dickman)	0					Fair	100	80	20
15		B. C. (A. W. Finlay)	0					Fair	100	90	15
12	S-Calif.	(L. L. Andrews)	0				.35	Fair	50	100	12
10	SE-Colo.	(Otis E. Adcock)	10					Slow	100	100	2
10	E-Conn.	(Allen Latham)	5					Fair		100	5
11	S-Fla.	(C. C. Cook)	0					Fair	110	125	15
10	C-Fla.	(Harry Hewitt)	0					Fair	100	100	0
10	SE-Ga.	(J. J. Wilder)	0					None	80	100	5
6	S-Ills.	(Carl E. Killion)	0					Rapid	80	80	0
8	NC-Ind.	(T. C. Johnson)	0		6.00		.35	Good	90	100	5
6	NW-Ind.	(E. S. Miller)	5					Fair	90	100	
12	W-Iowa	(E. G. Brown)	0					Fair	50	100	15
6	E-Mich.	(L. S. Griggs)	0				.30	Fair	50	80	5
10	S-Mich.	(Floyd Markham)	5					Slow	80	100	0
8	C-Mich.	(E. D. Townsend)	0						80		
10	SW-Minn.	(L. A. Syverud)	7					Fair	100	80	20
12	W-Minn.	(B. L. Morehouse)	0					Fair	80	85	5
14	C-Nebr.	(J. H. Wagner)	0				.28	Fair	90	90	5
17	W-Nev.	(Mrs. E. G. Norton)	0					Fair	90	90	2
11	W-Nev.	(Geo. G. Schweis)						Slow	75		
10	NW-N.Y.	(Adams & Myers)	0					Fair	100	100	
11	NW. N Y.	(Geo. B. Howe)						Slow	95		
7	C-N. Y.	(F. W. Lesser)	1						90	100	5
8	NW-N. C.	(C. S. Baumgarner)						Slow	100	100	75
10	SE-N. C.	(W. J. Martin)	0					Fair	90	100	
10	C-Ohio	(R. D. Hiatt)	0					Fair	85	90	15
8	NC-Okla.	(C. F. Stiles)	1					Fair	90	85	0
10	C-Penn.	(Harry Beaver)	1					Slow		90	2
11	SE-Penn.	(D. C. Gilham)	5		5.40		.32	Rapid	80		
8	W-S. C.	(E. S. Prevost)	0					Fair	98	90	10
8	E-Tenn.	(W. L. Walling)	0					Fair	100	90	0
14	C-Texas	(T. A. Bowden)	0					Rapid	100	100	5
10	S-Texas	(C. G. Mayes)	20					Rapid	70	70	10
10	S-Texas	(H. B. Parks)	0					Fair	90	100	1
10	N-W.Va.	(W. C. Griffith)	0					Slow	75	50	2
8	W-Wisc.	(E. H. Hanselman)	10				.32	Rapid	75	80	2
10	N-Wyo.	(Farl C. Reed)	0					Fair	75	90	10

Are You Working Against Time?

Root Frames

Will save you time and money.

Can be assembled and nailed rapidly. They are absolutely rigid and square, and are easy to handle in the hive.



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